

**Bibliography on  
COLD REGIONS  
SCIENCE AND TECHNOLOGY**

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**Bibliography on  
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**VOLUME 34, Part 1** and *Part 2*

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Geza T. Thuronyi Editor

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# BIBLIOGRAPHY ON COLD REGIONS SCIENCE AND TECHNOLOGY

## Volume 34, 1980

### INTRODUCTION

The *Bibliography on Cold Regions Science and Technology* was first published in 1951 and is a continuing publication of the Cold Regions Bibliography Project in the Science and Technology Division of the Library of Congress. It is sponsored by and prepared for the Cold Regions Research and Engineering Laboratory (formerly Snow, Ice and Permafrost Research Establishment) of the U.S. Army Corps of Engineers. Volumes 1-15 were issued as the *Bibliography on Snow, Ice and Permafrost*, SIPRE Report 12. Beginning with volume 16 the designation was changed to CRREL Report 12. With volume 20 the title was changed to *Bibliography on Snow, Ice and Frozen Ground, with Abstracts*, and with volume 23 the current title was adopted.

The present volume contains material accessioned between October 1979 and September 1980. It contains the full citation of 4255 items, in many cases with abstracts. Pt. 2 is an index section divided into author and subject indexes. In the author index principal and joint personal and corporate authors are listed along with the title, date, pagination, and language of the document and the accession number. The subject index is composed of three basic elements: 1) terms taken from a controlled vocabulary based on the *Thesaurus of Engineering and Scientific Terms* (LEX-E JC), 2) free terms added as needed, 3) geographic names, generally entered under countries. The terms are listed in a single alphabetical arrangement, along with title (original, translated, abridged, expanded, or supplied), principal author, date, pagination, and language of pertinent documents, and their accession numbers.

This publication is the result of a coordinated effort. The bibliographic work was done by the Cold Regions Bibliography Project Staff who entered all data on a single computerized data base that accommodates both the *Bibliography on Cold Regions Science and Technology* and the *Antarctic Bibliography*, thus eliminating duplication of effort between the two bibliographies. The data processing, based on MARC II input, was handled by the Library's Automated Systems Office and the photocomposition by the Cataloging Distribution Service.

Geza T. Thuronyi, Head  
Cold Regions Bibliography Project  
Science and Technology Division  
Library of Congress

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Physical hydrology; New Zealand experience.  
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Ackroyd, P., ed.  
Hydrology, New Zealand.

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Snow hydrology, Snow water equivalent, Water reserves, Snow cover structure, Seasonal variations, Remote sensing, New Zealand.

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Agapova, R.A., Dudkin, A.S., Abramov, V.M.  
Sands, Gravel, Cements, Frost heave, Frost protection, Roads, Roadbeds, Construction materials.

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Soil microbiology, Cold tolerance, Taiga, Supercooling.  
The objectives of the present study were to determine the degree of cold tolerance as exemplified by individual supercooling points, of prominent species of soil and litter dwelling micro-arthropods in a forest habitat in central Alaska, and to examine the effects of body water content, season and hence environmental temperature, on their ability to supercool. All arthro-

pods tested were susceptible to freezing, and the mites utilize supercooling to avoid freezing. Reference is made to studies of supercooling in antarctic terrestrial arthropods.

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Romans, J.C.C., Robertson, L.  
Soil profiles, Continuous permafrost, Soil composition, Weathering, Elephant Island.  
Three soil profiles from ice-free areas around the periphery of Elephant Island are described and discussed. All three sites are underlain by continuous permafrost and the time interval since exposure to subaerial weathering and leaching is believed to range from several hundred years to about 10,000 yr. Incipient profile-horizon differentiation is just detectable on the oldest site but all three profiles show very little evidence of mineral weathering. (Auth.)

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Richardson, M.G., et al., British Antarctic Survey. Bulletin, Mar. 1979, No.47, p.106-115, 12 refs.  
Whitaker, T.M.  
Algae, Fast ice, Sea ice, Ecology.  
Sea ice provides a great variety of sites for micro-algal growth. During winter 1973, observations were made on the colonization of the coastal ice foot at Signy Island and on the feeding habits of *Pontogeneia antarctica* Chevreux associated with the micro-algal growth. Samples of amphipods and micro-algae were taken using SCUBA diving techniques. The ice-associated micro-flora started development in early June with extensive growth of the blue-green algae *Phaeocystis antarctica* Karsten. This was replaced, mainly by diatoms, with *Navicula glaciei* Van Heurck and *Nitzschia curta* (Van Heurck) Hasle predominant. With the formation of fast ice, the amphipod migrated from its summer habitat among the weed bed of the shallow water to the coastal tide-crack area. Here a protracted hatching release started in August and both young and some adults fed on the developing micro-algal flora of the ice foot. *Pontogeneia antarctica* seems to be non-selective, consuming detrital, algal or crustacean material within a broad range of particle size. This omnivorous feeding, combined with protracted hatching release and migration to the ice-associated food source present during the most winters, increases the probability that young will survive in a variable environment. (Auth.)

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Research projects, Geologic structures, Geomorphology, Shores, Sea ice, Oil spills, Environmental impact.

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**34-16**  
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Sea ice, Ice conditions, History.  
The report is comprised mostly of excerpts from ship logs (traders, whalers, and government cutters) dating back to the mid-nineteenth century. Nearly all excerpts contain notations about ice. Maps are included showing monthly summer and fall positions of the ice edge broken down into twenty year segments from 1860 through 1970. Maps are for the Beaufort and Chukchi Seas abutting Alaska.

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Tundra, Meadow soils, Animals, Ecology, Fires, Oil spills, Damage.

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Wahlgren, R.V., Canada. Geological Survey. Paper, 1979, 79-1B, p.51-62, 22 refs.  
Ice scoring, Echo sounding, Bottom topography.

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Egginton, P.A., Canada. Geological Survey. Paper, 1979, 79-1B, p.349-356, 6 refs.  
Patterned ground, Frost heave, Soil creep, Soil water migration, Animals.

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Aspects of the glacial history of the north-central highlands of New Brunswick.  
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Dyke, A.S., Canada. Geological Survey. Paper, 1979, 79-1B, p.385-394, 15 refs.  
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Kolkner, B., *Eastern Snow Conference. Proceedings*, 1978, 35th, p.17-35, 7 refs.  
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Accuracy of snow samplers for measuring shallow snowpacks: an update.  
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Snow samplers, Measuring instruments.
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Future U.S. satellite programs of interest to snow scientists.  
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Lake ice, Snow cover, Snow physics, Snow depth, Snow density, Snow water equivalent.
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Snow cover suitability percentiles for skiing and snowmobiling.  
Crowe, R.B., *Eastern Snow Conference. Proceedings*, 1978, 35th, p.129-140, 1 ref.  
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Heath, D.B.  
Precipitation (meteorology), Snowfall, Altitude.
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Heat transfer, Snowmelt, Radiation, Ablation, Heat balance.
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Lake ice, Snow composition, Impurities, Water chemistry, Ice formation.
- 34-42**  
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Roads, Pavements, Subgrades, Thermal insulation, Icing.
- 34-43**  
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Gravimetric prospecting, Sea ice, Measuring instruments.
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Trees (plants), Avalanches.
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Lacustrine deposits, Bottom sediment, Glacial deposits.
- 34-48**  
Depositional history of artificial radionuclides in the Ross Ice Shelf, Antarctica.  
Koide, M., et al., *Earth and planetary science letters*, Aug. 1979, 44(2), p.205-223, 25 refs.  
Michel, R., Goldberg, E.D., Herron, M.M., Langway, C.C., Jr.  
Ice shelves, Fallout, Ice composition, Atmospheric composition, Antarctica—Ross Ice Shelf.  
The annual fluxes of artificial radionuclides (Pu-239, Pu-239 + 240, Am-241, Cs-137, Sr-90 and H-3) from the atmosphere to the Ross Ice Shelf in Antarctica were determined from measurements in strata dated by Pb-210. Recognizable sources include the U.S. tests (Mike-Ivy and Castle Hill) in the early 1950s, the U.S.S.R. tests in the early 1960s, the SNAP-9A burnup of 1964 and the French and Chinese tests in the late 1960s and 1970s. There are several problems still awaiting resolution: the differences in atmospheric chemistries of fission products and of transuramics produced in weapon tests and the anomalous fluxes of Pu-238 to the ice shelf which do not appear to reflect a one-year stratospheric residence. There is no evidence for a smearing of the fallout record as a consequence of diffusion of these radionuclides in the glacial column. (Auth.)
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International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. National Research Council. Transportation Research Board. Special report 185, Washington, D.C., National Academy of Sciences, 1979, 355p., For individual reports see 32-2752, 33-57, and 34-50 through 34-102.  
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Meetings, Snow removal, Ice control.
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Winter maintenance, Salting, Snow removal.
- 34-51**  
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Research projects, Aircraft icing, Ice removal, Snow removal.
- 34-52**  
Compaction of wet snow on highways.  
Colbeck, S.C., *National Research Council. Transportation Research Board. Special report*, 1979, No.185, MP 1234, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.14-17, 7 refs.  
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Wet snow, Snow compaction, Snow removal, Salinity.  
The compressibility of wet snow decreases with decreasing liquid water content but increases with decreasing salinity. Also, the tendency for snow splashing on highways increases with decreasing salinity. These opposite effects are complicated by the fact that liquid water content and salinity are not necessarily independent. The amount of liquid present can be controlled somewhat by the road grade, and salinity is generally determined by how much salt is applied to the road surface. For different situations it may be desirable to regulate salt applications in order to achieve a maximum amount of splashing with a minimum of compaction of wet snow into ice. Here we provide a qualitative review of wet snow and suggest how an understanding of wet snow's behavior on a road surface might increase our ability to deal with snow removal problems.
- 34-53**  
Studies on tensile strength of wet snow.  
Wakahama, G., et al., *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.18-22, 5 refs.  
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Wet snow, Tensile properties, Adhesion, Snow accumulation.
- 34-54**  
Adhesion of ice to concrete surfaces—preliminary results.  
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Ice adhesion, Concrete pavements, Ice solid interface, Tensile properties.
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Adhesive strength of contaminated ice.  
Yano, K., *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.30-34, 4 refs.  
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Ice adhesion.



34-56

**Electrical properties of ice-solid interfaces.** Camp, P.R., et al, *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.35-43, 8 refs.  
Haichin, D.J.  
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**Ice solid interface, Ice electrical properties, Dielectric properties, Temperature effects, Impurities.**

34-57

**Numerical simulation of atmospheric ice accretion.** Ackley, S.F., et al, *National Research Council. Transportation Research Board. Special report*, 1979, No.185, MP 1235, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.44-52, 7 refs.  
Templeton, M.K.  
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**Ice accretion, Mathematical models, Environment simulation, Drops (liquids), Particle size distribution, Time factor.**  
Time-dependence enters into calculations of ice accretion on objects primarily through terms dependent on the initial conditions and size and geometry of the object. A numerical technique to include the time-dependence is described here as well as simulation of complex situations where the conditions vary, for example, along a helicopter rotor blade. Some results of varying droplet sizes, velocity, and droplet distributions are presented. These indicate the general dependence of ice accretion on these parameters as well as illustrate the utility of numerical techniques in seeing how these effects can influence the rates of ice accretion for particular initial conditions.

34-58

**Preliminary assessment of an ice accretion system.** Tattelman, P., *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.53-56, 12 refs.  
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**Ice accretion, Environment simulation, Measuring instruments, Cold chambers.**

34-59

**Model for traffic delay and its convenience and wage costs.** Kennedy, W.J., et al, *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.57-60, 4 refs.  
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DLC TE220.5.155 1978  
**Cost analysis, Transportation, Snow cover effect, Models.**

34-60

**Environmental model for predicting impacts from deicing salts.** Thuet, J.H., *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.61-65, 17 refs.  
DLC TE220.5.155 1978  
**Environment simulation, Environmental impact, Models, Salting, Damage.**

34-61

**Value engineering study of snow and ice control.** Russell, G.L., et al, *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.66-73.  
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DLC TE220.5.155 1978  
**Cost analysis, Snow removal, Ice control, Surveys.**

34-62

**Effects of highway design standards on snow and ice control operations.** Hogan, R.A., *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.74-78, 3 refs.  
DLC TE220.5.155 1978  
**Snow removal, Ice control, Road maintenance, Winter maintenance.**

34-63

**Snow removal and ice control standards at Canadian airports.** Levitsky, W.V., *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.79-81.  
DLC TE220.5.155 1978  
**Airports, Snow removal, Ice control, Canada.**

34-64

**New Jersey Department of Transportation model for winter equipment and manpower allocations.** Cifelli, N.J., et al, *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.82-84.  
DLC TE220.5.155 1978  
**Snow removal, Winter maintenance, Maintenance personnel.**

34-65

**Laboratory experiments on icing of rotating blades.** Ackley, S.F., et al, *National Research Council. Transportation Research Board. Special report*, 1979, No.185, MP 1236, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.85-92, 7 refs.  
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DLC TE220.5.155 1978

**Laboratory techniques, Ice accretion, Helicopters, Ice cover thickness, Temperature effects.**  
Experiments have been conducted to provide a basis for a computer model that simulates atmospheric ice accretion on a rotating blade. A comparison of the computer model simulation and experimental results reveals that general agreement exists within the temperature range 0 C to -25 C and the velocity range 0 to 60 m/s. Beyond 60 m/s the computer simulation over-predicts the thickness of the ice accretion at the leading edge. Below -25 C the simulation and experimental results disagree in that the simulation significantly overpredicts the thickness of the accretion at the leading edge.

34-66

**Crystalline structure of ice developing by accretion of supercooled water droplets on a single wire and growth process of rime on a square board placed in the air flow containing supercooled droplets and snow flakes.** Abe, M., et al, *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.93-94.  
Yano, K.  
DLC TE220.5.155 1978  
**Ice crystal structure, Supercooling, Ice accretion.**

34-67

**Experimental studies of snow accretion on power lines.** Fujino, K., et al, *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.95-100, 5 refs.  
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DLC TE220.5.155 1978  
**Snow accumulation, Power lines, Snow crystal structure, Snow crystal growth, Wind velocity.**

34-68

**Snow accretion on traffic-control sign boards and its prevention.** Takeuchi, M., *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.101-105, For Japanese original see 33-1197.  
DLC TE220.5.155 1978  
**Snow accumulation, Blowing snow.**

34-69

**Icepobic coatings for highway pavements.** Cook, J.C., *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.106-115, 10 refs.  
DLC TE220.5.155 1978  
**Ice adhesion, Pavements, Ice prevention, Protective coatings, Cold weather tests, Ice removal, Snow removal.**

34-70

**Method of predicting road salt runoff in New Hampshire.** Spear, P.W., et al, *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.116-120, 9 refs.  
Schiffman, M.J.  
DLC TE220.5.155 1978  
**Ice removal, Salting, Chemical properties, Runoff, Environmental impact.**

34-71

**Use of synthetic snowfalls in the evaluation of snow removal systems.** Sage, J.D., *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.121-128, 12 refs.  
DLC TE220.5.155 1978  
**Snowfall, Mathematical models, Computerized simulation, Environment simulation, Snow removal, Cost analysis.**

34-72

**Control of snow and ice on road and communication facilities in the Himalayas.** Malik, S.C.L., et al, *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.129-134.  
Singh, L.D.  
DLC TE220.5.155 1978  
**Snow removal, Chemical ice prevention, Road maintenance, Telecommunication, Topographic effects, Wind velocity, Himalaya Mountains.**

34-73

**Snow and road pavements in western Himalayas.** Soin, J.S., et al, *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.135-140.  
Dhir, M.P.  
DLC TE220.5.155 1978  
**Road maintenance, Snow cover effect, Mountains, Winter maintenance, Topographic factors, Climate, Himalaya Mountains.**

34-74

**Snow clearance—west Himalayan road—some problems.** Soin, J.S., *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.141-150.  
DLC TE220.5.155 1978  
**Construction, Road maintenance, Snow removal, Topographic effects, Avalanches, Himalaya Mountains.**

34-75

**Overview of some of the factors influencing snow and ice control and the resultant impacts of their implementation.** Belangie, M.C., *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.151-158, 12 refs.  
DLC TE220.5.155 1978  
**Snow removal, Ice control, Cost analysis, Public opinion polls.**

34-76

**Heating bridge decks by electrical resistance.** Havens J.H., et al, *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.159-168, 2 refs.  
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DLC TE220.5.155 1978  
**Bridges, Snow removal, Ice removal, Electric heating.**

34-77

**Geothermal heating of bridge decks.**

Cundy, V.A., et al. *National Research Council Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.169-175, 7 refs.  
DLC TE220.5.155 1978

**Heat sources, Geothermal prospecting, Pipes (tubes), Snow removal, Bridges.**

34-78

**Physical alternatives to chemicals for highway deicing.**

Blackburn, R.R., et al. *National Research Council Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.176-184, 1 ref.  
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DLC TE220.5.155 1978

**Snow strength, Ice adhesion.**

34-79

**On the performance of a two stage rotary snow blower.**

Shibuya, M., et al. *National Research Council Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.185-191, 1 ref.  
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DLC TE220.5.155 1978

**Snow removal, Cold weather performance.**

34-80

**Airborne snow concentration and visibility.**

Stallabrass, J.R., *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.192-199, 7 refs.  
DLC TE220.5.155 1978

**Snowfall, Visibility, Distribution, Density (number - volume).**

34-81

**Measuring visibility in blowing snow.**

Schmidt, R.A., *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.200-207, 15 refs.  
DLC TE220.5.155 1978

**Visibility, Blowing snow, Measuring instruments.**

34-82

**Visibility in blowing snow and applications in traffic operations.**

Tabler, R.D., *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.208-214, 6 refs.  
DLC TE220.5.155 1978

**Blowing snow, Visibility, Wind velocity, Computer applications.**

34-83

**Present status of the bridge ice detection program at FHWA.**

Leifer, J.C., *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.215-219.  
DLC TE220.5.155 1978

**Bridges, Ice detection, Radiation measuring instruments.**

34-84

**Systems study of snow removal.**

Minsk, L.D., *National Research Council. Transportation Research Board. Special report*, 1979, No.185, MP 1237, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.220-225, 4 refs.  
DLC TE220.5.155 1978

**Snow removal, Systems analysis.**

The framework for a systems analysis of snow removal and ice control on roads is presented. Definition of the operating conditions, the principal ones of which are climate and traffic, as well as the system itself, the road net, is required. Equipment factors involved in performing the basic functions of clearing, spreading, loading, and hauling are analyzed.

34-85

**Research on an air lubricated snow plow.**

Ringer, T.R., et al. *National Research Council Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.226-231, 4 refs.  
Mazur, T.M.  
DLC TE220.5.155 1978

**Snow removal, Lubricants.**

34-86

**Study on the resistance of snow plowing and the running stability of a snow removal truck.**

Kaku, T., *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.232-239, 3 refs.  
DLC TE220.5.155 1978

**Snow removal, Friction, Stability.**

34-87

**Snow removal and ice control on the Italian turnpike network.**

Rocco, V., et al. *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.240-244.  
Cidda, C.  
DLC TE220.5.155 1978

**Snow removal, Ice control, Winter maintenance, Italy.**

34-88

**Snow removal and ice control for ground transport channels and terminals.**

Huang, E.Y., *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.245-253.  
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**Snow removal, Ice control.**

34-89

**About snow drifts.**

Jumikis, A.R., *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.254-258, 16 refs.  
DLC TE220.5.155 1978

**Snowdrifts, Blowing snow, Snow physics, Snow cover structure.**

34-90

**Alternative highway deicing chemicals.**

Dunn, S.A., et al. *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.261-269, 25 refs.  
Schenk, R.U.  
DLC TE220.5.155 1978

**Ice removal, Chemical ice prevention, Road maintenance.**

34-91

**Effect of chloride concentration on automobile stopping distance.**

Hu, A.C.H., *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.270-274.  
DLC TE220.5.155 1978

**Ice removal, Motor vehicles, Skid resistance.**

34-92

**Evaluation of the use of salt brine for deicing purposes.**

Kasinskas, M.M., *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.275-281, 4 refs.  
DLC TE220.5.155 1978

**Snow removal, Chemical ice prevention, Ice removal, Brines.**

34-93

**Enhancing ice-melting action of rock salt by prewetting with calcium chloride.**

Lattimore, D.R., et al. *National Research Council Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.282-288, 14 refs.  
Mossner, E.H., Nixon, J.G.  
DLC TE220.5.155 1978

**Chemical ice prevention, Snow removal, Salting, Ice melting.**

34-94

**Detachment of ice from surfaces by application of high intensity light.**

Mouat, T.W., et al. *National Research Council Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.289-292, 5 refs.  
Saunders, R.L.  
DLC TE220.5.155 1978

**Ice removal, Light effects, Ice solid interface.**

34-95

**Computer simulation of urban snow removal.**

Tucker, W.B., et al. *National Research Council. Transportation Research Board. Special report*, 1979, No.185, MP 1238, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.293-302, 11 refs.  
Clohan, G.M.  
DLC TE220.5.155 1978

**Snow removal, Computerized simulation, Environment simulation.**

A general computer model to simulate urban snow removal has been developed. One part of the package includes several programs which assist in the routing of snow removal vehicles using computer graphics. The primary element, however, is a program which, once specific vehicle routes are input, allows the simulation of any particular snow removal scenario. Parameters that can be varied include both truck and snowstorm characteristics. This simulation program is tested using truck routes and storm data from Newington, Connecticut. Results indicate that the simulation predicts plowing times quite reasonably.

34-96

**Countermeasures against snow accretion and icing on radomes.**

Suzuki, M., et al. *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.303-307, 4 refs.  
Sha, K., Tsukawaki, T.  
DLC TE220.5.155 1978

**Snow accumulation, Ice accretion, Radomes, Countermeasures.**

34-97

**Protection methods for railway switches in snow conditions.**

Ringer, T.R., *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.308-313, 5 refs.  
DLC TE220.5.155 1978

**Snow cover effect, Icing, Railroad tracks.**

34-98

**Development of a snowplough/salt spreading vehicle for ice and snow clearance of motorways in England.**

Gould, R.J., *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.314-317.  
DLC TE220.5.155 1978

**Snow removal, Ice removal, United Kingdom.**

34-99

**Snow collection by possible high speed guideway sections.**

Ringer, T.R., et al. *National Research Council Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.318-327, 5 refs.  
Price, R.D.  
DLC TE220.5.155 1978

**Snow accumulation, Air cushion vehicles, Guideways.**

- 34-100**  
**Combating ice on AIRTRANS and other guideways.** Patton, R.J., et al. *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.328-336, 11 refs. Raven, R.R. DLC TE220.5.155 1978  
**Ice accretion, Countermeasures, Guideways.**
- 34-101**  
**All-weather protection for AGT guideways and stations.** Stevens, R.D., et al. *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.337-342. Nicario, T.J. DLC TE220.5.155 1978  
**Cold weather operation, Icing, Countermeasures, Guideways.**
- 34-102**  
**Controlling snow and ice on the Morgantown people mover system.** Morgan, P.H., *National Research Council. Transportation Research Board. Special report*, 1979, No.185, International Symposium on Snow Removal and Ice Control Research, 2nd, Hanover, N.H., May 15-19, 1978. Proceedings, p.343-349, 5 refs. DLC TE220.5.155 1978  
**Snow removal, Ice control, Cold weather operation, Guideways.**
- 34-103**  
**Trace element content of Greenland snows along an east-west transect.** Boutron, C., *Geochimica et cosmochemica acta*, Aug. 1979, 43(8), p.1253-1258, 24 refs.  
**Snow composition, Snow impurities, Aerosols, Chemical composition, Greenland.**
- 34-104**  
**Successions of lithophile lichen communities in the northern Ural highlands.** [Suktsessii soobshchestv litofil'nykh lichainikov v vysokogoriakh Severnogo Urala], Magomedova, M.A., *Ekologiya*, May-June 1979, No.3, p.29-38, In Russian. 10 refs.  
**Alpine tundra, Lichens, Plant ecology, Ecosystems.**
- 34-105**  
***Pinus sibirica* as an indicator of environmental conditions in the Khamar-Daban Mountains and Tunkinskiye Gol'tsy.** [Kedr sibirskii—indikator uslov' mesteobitaniia na Khamar-Dabane i Tunkinskikh Gol'tsakh]. Tarakanov, A.G., *Ekologiya*, May-June 1979, No.3, p.80-83, In Russian. 7 refs.  
**Alpine landscapes, Forest soils, Forest ecosystems, Geocryology, Solifluction, Snow cover distribution, Slope orientation.**
- 34-106**  
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**Mountain glaciers, Radio echo soundings, Glacial hydrology, Glacier ablation, Albedo, Snow cover distribution, Snow recrystallization, Glacier alimentation, Ice sublimation, Snow evaporation, Periglacial processes.**
- 34-107**  
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**Solar radiation, Glacier ablation, Albedo, Climatic factors, Glacier oscillation, Glacier ice, Ice melting.**
- 34-108**  
**Structure of Altai snow cover.** [Struktura snezhnoi tolshchi Altaia], Reviakin, V.S., et al. Nauchnaia konferentsiia Problemy gliatsiologii Altaia, Tomsk, 1973. Materialy (Scientific conference on Altai glaciology problems, Tomsk, 1973. Proceedings) edited by M.P. Kortusov, Tomsk, Universitet, 1973, p.28-36, In Russian. 7 refs. Varganova, M.S. DLC GB2556.A57N38  
**Snow cover distribution, Snow accumulation, Snow-drifts, Snow cover structure, Snow recrystallization, Snow stratigraphy.**
- 34-109**  
**Use of tethered radiosondes in the Aktru mountain glacier basin.** [Primenenie priviaznykh radiozondov v gorno-lednikovom basseine Aktru], Slutskii, V.I., et al. Nauchnaia konferentsiia Problemy gliatsiologii Altaia, Tomsk, 1973. Materialy (Scientific conference on Altai glaciology problems, Tomsk, 1973. Proceedings) edited by M.P. Kortusov, Tomsk, Universitet, 1973, p.82-86, In Russian. Sevastianov, V.V., Snegirev, I.U.B. DLC GB2556.A57N38  
**Mountain glaciers, Glacial meteorology, Balloons, Measuring instruments, Design.**
- 34-110**  
**Glaciological and climatological significance of ablation periods.** [Gliatsiologicheskoe i klimatologicheskoe znachenie abliatsionnogo perioda], Oleinik, I.I.A., Nauchnaia konferentsiia Problemy gliatsiologii Altaia, Tomsk, 1973. Materialy (Scientific conference on Altai glaciology problems, Tomsk, 1973. Proceedings) edited by M.P. Kortusov, Tomsk, Universitet, 1973, p.87-92, In Russian. DLC GB2556.A57N38  
**Ice sublimation, Glacier ablation, Snow evaporation, Mountain glaciers, Ice melting, Mass balance.**
- 34-111**  
**Accuracy of using floats in measuring water discharge of small mountain rivers.** [Issledovanie tochnosti izmereniia rashodov vody poplavykami na mal'nykh gorn'nykh rekakh], Chirkova, A.A., et al. Nauchnaia konferentsiia Problemy gliatsiologii Altaia, Tomsk, 1973. Materialy (Scientific conference on Altai glaciology problems, Tomsk, 1973. Proceedings) edited by M.P. Kortusov, Tomsk, Universitet, 1973, p.115-128, In Russian. 12 refs. Shantykova, L.N., Glazyrin, G.E. DLC GB2556.A57N38  
**Glacial hydrology, Glacial rivers, Drainage, Measuring instruments, Accuracy.**
- 34-112**  
**Periglacial vegetation of the Katun Range.** [K izucheniiu periglatsial'noi rastitel'nosti Katunskogo khrebtja], Reviakina, N.V., Nauchnaia konferentsiia Problemy gliatsiologii Altaia, Tomsk, 1973. Materialy (Scientific conference on Altai glaciology problems, Tomsk, 1973. Proceedings) edited by M.P. Kortusov, Tomsk, Universitet, 1973, p.136-140, In Russian. 7 refs. DLC GB2556.A57N38  
**Alpine landscapes, Periglacial processes.**
- 34-113**  
**Permafrost and paleogeographic problems of northwestern Siberia.** [Problemy paleogeografii severa Zapadnoi Sibiri i mnogoletniia merzlotaj], Zemtsov, A.A., Nauchnaia konferentsiia Problemy gliatsiologii Altaia, Tomsk, 1973. Materialy (Scientific conference on Altai glaciology problems, Tomsk, 1973. Proceedings) edited by M.P. Kortusov, Tomsk, Universitet, 1973, p.157-163, In Russian. 15 refs. DLC GB2556.A57N38  
**Permafrost origin, Permafrost distribution, Permafrost thickness, Paleocology, Paleoclimatology.**
- 34-114**  
**Meteorological visibility range of 4 km and less at airports of West Siberia.** [Meteorologicheskaja dal'nost' vidimosti 4 km i mence v aeroportakh Zapadnoi Sibiri], Martem'ianova, E.S., Nauchnaia konferentsiia Problemy gliatsiologii Altaia, Tomsk, 1973. Materialy (Scientific conference on Altai glaciology problems, Tomsk, 1973. Proceedings) edited by M.P. Kortusov, Tomsk, Universitet, 1973, p.243-250, In Russian. 13 refs. DLC GB2556.A57N38  
**Airports, Ice fog, Visibility, Forecasting.**
- 34-115**  
**Economic peculiarities of organizing raw material bases for Yakutian industry.** [Ekonomicheskie osobennosti podgotovki syr'evoi bazy promyshlennosti Iakutskoi ASSR], Kirillin, A.D., ed. Yakutsk, Yakut. filial SO AN SSSR, 1977, 121p., In Russian. For selected papers see 34-116 through 34-120. Krivoschapkin, A.I., Poiseev, I.I., ed. DLC TN110.Y3E36  
**Gas pipelines, Permafrost beneath structures, Permafrost control, Gas production, Liquefied gases, Storage, Geological surveys, Drilling, Cost analysis.**
- 34-116**  
**Methods of determining the economic effectiveness of geological surveys.** [O metodakh opredeleniia ekonomicheskoi effektivnosti geologorazvedochnykh rabot], Andreev, M.G., et al. Ekonomicheskie osobennosti podgotovki syr'evoi bazy promyshlennosti Iakutskoi ASSR (Economic peculiarities of organizing raw material bases for Yakutian industry) edited by A.D. Kirillin, A.I. Krivoschapkin and I.I. Poiseev, Yakutsk, Yakut. filial SO AN SSSR, 1977, p.3-10, In Russian. Kirillin, A.D., Krivoschapkin, A.I. DLC TN110.Y3E36  
**Geological surveys, Permafrost distribution, Cost analysis.**
- 34-117**  
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**Solar and net radiation over snow.** Petzold, D.E., *McGill University, Montreal. Department of Geography. Climatological research series*, Nov. 1974, No.9, 77p., In English with French summary. 37 refs. For another version of this paper see 33-1482.  
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**Snow optics, Solar radiation, Forest land, Radiation balance, Heat transfer, Albedo.**
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**Ice drift in the presence of ice hummocks.** Gorbunov, I.U.A., et al., *U.S. Army Cold Regions Research and Engineering Laboratory*, July 1979, TL 718, 15p., ADB-040 348, For Russian original see 33-1510. 5 refs.  
**Losev, S.M., Timokhov, L.A.**  
**Sea ice, Drift, Ice islands, Hummocks.**  
Patterns of sea ice flow were surveyed aerially. The results were used to determine the effects of grounded ice islands (known as "ice hummocks") on ice flow. Ice hummocks were found to change the direction and rate of flow in the surrounding area. "Straits" between ice hummocks were found to affect flow locally, but the density of ice hummocks in a given area was found to be more important on a large scale. Ice hummocks are found to have significant effects on the flow of sea ice, especially on velocity of flow.
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**Construction and performance of membrane encapsulated soil layers in Alaska.** Smith, N., *U.S. Army Cold Regions Research and Engineering Laboratory*, June 1979, CR 79-16, 77p., ADA-073 531, 17 refs.  
**Soil freezing, Cold weather tests, Frost protection, Soil water, Waterproofing, Frost heave.**  
In 1973 two membrane encapsulated soil layer (MESL) test sections were constructed into existing gravel surfaced roads at Elmendorf AFB and at Ft. Wainwright in Anchorage and Fairbanks, Alaska, respectively. The Elmendorf AFB MESL contains a silty clay soil and the Ft. Wainwright MESL contains a nonplastic silt. Both sections were constructed at soil moisture contents of approximately 2% to 3% below optimum for the CE-12 compactive effort. There were no indications of soil moisture migration during freezing in either test section, and after-thaw field California Bearing Ratio values were nearly equal to values measured before freezing. There is growing evidence of a slight increase in the overall soil moisture content in the Elmendorf AFB MESL, possibly from moisture entering through the single layer polyethylene sidewalls which were not treated with asphalt emulsion. There is good evidence that the membrane of the same section might have received damage during a soil sampling operation which allowed localized moisture infiltration. A two-layer polyethylene membrane used in the Ft. Wainwright MESL is considered a more positive moisture barrier than the single sheet and a justifiable added cost for permanent construction.
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**Engineer design test of Cold Regions Research and Engineering Laboratory (CRREL) shelter.** Dollahite, M.C., Fort Greely, Alaska, Cold Regions Test Center, 1978, 97p., ADB-031 528L, Distribution limited to U.S. Government agencies only.  
**Cold weather performance, Low temperature tests, Portable shelters, Utilities, Safety.**
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**Freezing problems associated with spray irrigation of wastewater during the winter.** Bouzoun, J.R., *U.S. Army Cold Regions Research and Engineering Laboratory*, May 1979, SR 79-12, 12p., ADA-070 031, 5 refs.  
**Waste treatment, Water treatment, Waste disposal, Irrigation, Ice prevention.**  
During the winters of 1975-76, 1976-77 and 1977-78, biologically treated wastewater was applied to land in West Dover, Vermont. The wastewater was applied using the spray irrigation method at ambient temperatures as low as 0°F. During the first winter, freezing was a major problem. Modified spray nozzles that were less susceptible to freezing were installed at both the low points and high points of the aboveground spray laterals. During the second and third winters, ice buildup along the spray laterals, particularly at the vicinity of the spray nozzles, caused serious damage to the pipes. Many man-hours were required to cut the ice repeatedly from the laterals. As an experiment to alleviate the problem, several 30- to 36-in risers were installed at an angle of approximately 30 degrees from the vertical on two of the spray laterals during the winter of 1977-78. They functioned well enough to warrant future installation on the entire system of spray laterals.
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**Drainage network analysis of a subarctic watershed. Caribou-Poker Creeks research watershed, interior Alaska.** Bredthauer, S.R., et al., *U.S. Army Cold Regions Research and Engineering Laboratory*, June 1979, SR 79-19, 9p., ADA-073 595, 14 refs.  
**Hoch, D.**  
**Watersheds, Drainage, Slope processes, Permafrost.**  
A Strahler stream order analysis and an exterior link length distribution analysis were made of the Caribou-Poker Creeks Research Watershed near Fairbanks, Alaska. The drainage network map used for analysis was produced using a 1:2250 scale aerial photograph mosaic. Low drainage densities characterize the basins. Bifurcation ratios indicate that the overall drainage network is not dominated by strong geologic controls. Statistical analysis indicates that bifurcating source links and tributary source links do not belong to the same length population, a characteristic shared by watersheds in other climatic regions of the world. Additional analysis indicates that exterior links originating on permafrost slopes tend to be shorter than those originating on non-permafrost, well-drained slopes.
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**Infrared thermography of buildings: 1977 Coast Guard survey.** Marshall, S.J., *U.S. Army Cold Regions Research and Engineering Laboratory*, June 1979, SR 79-20, 40p., ADA-073 596, 9 refs.  
**Buildings, Heat loss, Infrared photography, Windows.**  
An IRTB (infrared thermography of buildings) field survey, producing 631 thermograms, 127 photographs, and weather data, was conducted during a 14-day study of 10 Coast Guard stations in Maine, New Hampshire and Massachusetts. This report discusses how the survey was initiated and performed with emphasis on details for the benefit of the reader wishing to plan a survey. One hundred twenty selected thermograms and photographs in this report illustrate many types of heat loss and compare thermally ineffective doors and windows with units designated as standards for thermal effectiveness. Radiator heat leakage through walls, mottled moisture patterns on brick walls, infiltration patterns on glass, and poorly covered openings are illustrated. Thermograms of severe heat losses through glass doors, glass transoms, and glass wall panels are also included, and several solutions for individual heat loss problems, such as fiberglass garage doors and porcelain insulated panels, are suggested. Unanticipated survey problems, such as difficulties in obtaining photographs to compare with thermograms, are discussed. Various techniques for inclement weather, are also discussed.
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**Application of heat pipes on the Trans-Alaska Pipeline.** Heuer, C.E., *U.S. Army Cold Regions Research and Engineering Laboratory*, July 1979, SR 79-26, 27p., ADA-073 597, 26 refs.  
**Pipelines, Heat pipes, Heat transfer.**  
The application of heat pipes on the Trans-Alaska Pipeline is reviewed. The subjects addressed include the general functioning of a heat pipe, the specific heat pipe design used, the different situations where heat pipes were employed, the methods used to develop the heat pipe design, the methods used to monitor the operating heat pipes, and the performance of the heat pipes. The discussion is qualitative in nature. Quantitative information is largely omitted to allow coverage of a broad area and because it may be considered proprietary. Nevertheless, the information presented here should give a good appreciation of the quality and complexity of the heat pipe design. The information should also be useful in developing heat pipes for use in other cold regions applications.
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**Arun LNG plant onstream in Indonesia.** Inman, H., et al., *Pipeline and gas journal*, June 1979, 206(7), p.22-26.  
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**Liquefied gases, Natural gas, Manufacturing, Refrigeration, Gas production.**
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**Natural gas, Liquefied gases, Pipelines, Ice prevention, Low temperature tests.**
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**Snow removal.**
- 34-143**  
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Ice surveys, Ice reporting, Airborne radar, Ice conditions, Drift, Ice edge, Ice navigation.
- 34-359**  
Calculating basic components of ice balance in the Denmark Strait. [Raschet osnovnykh sostavlyayushchikh ledovogo balansa Datskogo proliva]. Antropova, I.V., et al. *Prirodnye uslovia i estestvennye resursy severnykh morey* (Natural conditions and resources of northern seas) edited by V.T. Zhevnovaty, Leningrad, 1977, p.90-107. In Russian. 9 refs.  
Kogan, B.A.  
DLC GC311.P74  
Ice navigation, Sea ice, Ice conditions, Ice forecasting, Ice edge, Drift.



34-360

Numerical modeling of the glaciers-ocean-atmosphere global system.

Sergin, V.I.A., *Journal of geophysical research*, June 20, 1979, 84(C6), p.3191-3204, 22 refs.

Ice sheets, Ice models, Climate, Mathematical models, Computerized simulation.

In order to carry out a study of the origins and thermodynamic mechanisms of the large-scale climate oscillations and glaciations of the earth which have occurred over the last few hundred thousand years, a simplified thermodynamic model of the glaciers-ocean-atmosphere global system is constructed. The dynamics of the system are analyzed by computer, and the perturbations due to deviations of the earth's orbit and to tectonic forces are examined. The characteristic regimes of the system are auto-oscillations, which exist with realistic numerical values of all parameters. The calculated variations in the mean temperature of both hemispheres, the temperature differences between the equator and pole, the sizes of marine and continental ice covers, the ocean level, and other values are of the same order of magnitude as those of empirical data. The transition from a relatively warm epoch (when continental ice sheets are absent) to conditions characteristic of the Pleistocene is modeled. The calculated curves show how weak temperature fluctuations are succeeded by large-scale oscillations. Thus the simulation results not only provide an answer to the question concerning the cause of oscillations in the earth's climate and glaciation during cold epochs, but they also explain the absence of oscillations during warm epochs: in the absence of the second inertial link (continental ice) the system is essentially aperiodic. Variations in the antarctic ice sheet are examined.

34-361

General concepts of glacier flow. (Fließen von Gletschern allgemein).

Hutter, K., Zurich. *Eidgenössische Technische Hochschule. Versuchsanstalt für Wasserbau, Hydrologie und Glaziologie. Mitteilungen*, 1979, Nr.37, p.39-55, In German. 14 refs.

Glacier flow, Glacier mass balance, Flow rate, Temperature effects, Analysis (mathematics).

34-362

Glacier flow; simple mathematical models related to the gas content of glaciers. (Fließen von Gletschern — einfache Modellrechnungen im Zusammenhang mit dem Gasgehalt von Gletschern).

Berner, W., Zurich. *Eidgenössische Technische Hochschule. Versuchsanstalt für Wasserbau, Hydrologie und Glaziologie. Mitteilungen*, 1979, No.37, p.57-70, In German. 8 refs.

Glacier flow, Mathematical models, Gas inclusions, Ice composition, Meltwater.

34-363

Sliding of ice. (Gleiten von Eis).

Hutter, K., Zurich. *Eidgenössische Technische Hochschule. Versuchsanstalt für Wasserbau, Hydrologie und Glaziologie. Mitteilungen*, 1979, No.37, p.71-92, In German. 19 refs.

Glacier flow, Bottom topography, Mathematical models, Basal sliding.

34-364

Kinetic waves in glaciers. (Kinematische Wellen in Gletschern).

Hutter, K., Zurich. *Eidgenössische Technische Hochschule. Versuchsanstalt für Wasserbau, Hydrologie und Glaziologie. Mitteilungen*, 1979, No.37, p.93-110, In German. 8 refs.

Glacier flow, Glacier tongues, Wave propagation, Ice cover thickness, Glacier surges, Analysis (mathematics).

34-365

Variations in glacier movement. (Variationen der Gletscherbewegung).

Aellen, M., et al. Zurich. *Eidgenössische Technische Hochschule. Versuchsanstalt für Wasserbau, Hydrologie und Glaziologie. Mitteilungen*, 1979, No.37, p.111-126, In German. 17 refs.

Glacier flow, Glacial hydrology, Glacier surges, Variations.

34-366

Water runoff through interglacial channels. (Wasserabfluss durch intraglaziäle Kanäle).

Ulrich, S., Zurich. *Eidgenössische Technische Hochschule. Versuchsanstalt für Wasserbau, Hydrologie und Glaziologie. Mitteilungen*, 1979, No.37, p.127-143, In German. 11 refs.

Glacial hydrology, Runoff, Glacier melting, Mathematical models.

34-367

Oceanographic observations in Barrow Strait and Wellington Channel, N.W.T., April 1973.

Herlinveaux, R.H., et al. Pacific marine science report, 78-4, Sidney, B.C., Institute of Ocean Sciences, Patricia Bay, Jan. 1978, 170p., 39 refs.

Fissel, D.B., Wilson, S.E.G.

Oceanographic surveys, Sea water, Water temperature, Salinity, Ocean currents, Fast ice, Canada—Northwest Territories—Barrow Strait, Canada—Northwest Territories—Wellington Channel.

34-368

Wind tunnel analysis of the effects of planting at highway grade separation structures. Final report.

Iowa. Highway Research Board, Project HR-202, June 1979, 210p., Refs. p.171-181.

Ring, S.L., Iversen, J.D., Sinatra, J.B., Benson, J.D. Snowdrifts, Wind tunnels, Snowstorms, Snow fences, Road maintenance, Vegetation, Models, Snow surveys.

34-369

Guide to the effects of underwater shock waves on Arctic marine mammals and fish.

Hill, S.H., *Pacific marine science report*, 1978, No.78-26, 50p., Refs. p.45-49.

Marine biology, Shock waves, Damage, Explosion effects, Animals, Polar regions.

34-370

Subsurface current measurements in eastern Lancaster Sound, N.W.T., summer 1977.

Fissel, D.B., et al. *Institute of Ocean Sciences, Patricia Bay, Victoria, B.C. Contractor report series*, 1978, No.78-3, 72p., 25 refs.

Wilton, G.R.

Ocean currents, Subsurface investigations, Sea water, Water temperature, Salinity, Wind factors, Canada—Northwest Territories—Lancaster Sound.

34-371

Melting curve of ice VII.

Mishima, O., et al. *Journal of chemical physics*, May 15, 1978, 68(10), p.4417-4418, 8 refs.

Endo, S.

High pressure ice, Melting points, Thermal conductivity, Latent heat, Electrical properties.

34-372

Thermal expansion anomaly of ice VI related to the order-disorder transition.

Mishima, O., et al. *Journal of chemical physics*, Feb. 15, 1979, 70(4), p.2037-2038, 8 refs.

Möri, N., Endo, S.

High pressure ice, Lattice structures, Thermal expansion, Proton transport.

34-373

Working capacity of machines and their resistance to abrasive wear at low temperatures. (Rabotosposobnost' mashin i voprosy ikh abrazivnoi iznosostokosti pri nizkikh temperaturakh).

Koval'chuk, V.A., *Stroitel'stvo v raionakh Vostochnoi Sibiri i Krainego Severa*, 1974, Vol.30, p.5-8, In Russian. 3 refs.

Abrasion, Earthwork, Frozen ground.

34-374

Modeling frozen ground as an abrasive medium. (Osnoyny postroeniia modeli merzlogo grunta kak abrazivnoi iznashivaiushchei sredy).

Gorbunov, V.F., et al. *Stroitel'stvo v raionakh Vostochnoi Sibiri i Krainego Severa*, 1974, Vol.30, p.8-11, In Russian.

Zelinger, F.F., Lev, V.D., Plotnikov, M.S.

Frozen ground, Models, Excavation, Abrasion.

34-375

Adhesive scattering of energy at the contact. (Adgizionnoe rasseivanie energii v kontakte).

Kashcheev, V.N., et al. *Stroitel'stvo v raionakh Vostochnoi Sibiri i Krainego Severa*, 1974, Vol.30, p.11-18, In Russian. 6 refs.

Khokhlov, V.A., Maksak, V.I.

Frozen ground, Grain size, Adhesion, Surface properties, Molecular energy levels, Excavation, Abrasion, Analysis (mathematics).

34-376

Types of wear at the impact contacts of surfaces. (Vidy iznosa pri udarnom kontaktirovani poverkhnostey).

Sorokin, G.M., *Stroitel'stvo v raionakh Vostochnoi Sibiri i Krainego Severa*, 1974, Vol.30, p.18-22, In Russian.

Excavation, Abrasion, Earthwork, Frozen ground.

34-377

Methods of studying abrasion strength of materials at low temperatures. (Metody issledovaniia abrazivnoi iznosostokosti materialov pri nizkikh temperaturakh).

Koval'chuk, V.A., *Stroitel'stvo v raionakh Vostochnoi Sibiri i Krainego Severa*, 1974, Vol.30, p.26-27, In Russian.

Abrasion, Excavation, Metals, Frozen ground.

34-378

Abrasive wear at subzero temperatures. (O metodike abrazivnogo iznashivaniia pri otritsatel'nykh temperaturakh).

Kogan, I.U.I., et al. *Stroitel'stvo v raionakh Vostochnoi Sibiri i Krainego Severa*, 1974, Vol.30, p.27-31, In Russian. 3 refs.

Angelova, G.V., Otrubennikov, V.M.

Metals, Excavation, Abrasion, Frozen ground, Earthwork.

34-379

Increasing resistance of materials to dynamic abrasive wear. (Metod povysheniia iznosostokosti v usloviakh dinamicheskogo abrazivnogo iznashivaniia).

Evdokimov, I.U.A., et al. *Stroitel'stvo v raionakh Vostochnoi Sibiri i Krainego Severa*, 1974, Vol.30, p.48-51, In Russian. 4 refs.

Burakov, A.A., Vulikh, I.U.A.

Abrasion, Excavation, Earthwork, Frozen ground.

34-380

Abrasive strength of technically pure metals at low temperatures. (Abrazivnaia iznosostokost' tekhnicheskii chistykh metallov pri nizkikh temperaturakh).

Koval'chuk, V.A., *Stroitel'stvo v raionakh Vostochnoi Sibiri i Krainego Severa*, 1974, Vol.30, p.56-60, In Russian. 5 refs.

Metals, Excavation, Abrasion, Frozen ground.

34-381

Effect of deterioration rate on abrasive strength of the steel 110G13L containing admixtures, at room and low temperatures. (Vliianie skorosti iznashivaniia pri komnatnoi i nizkoi temperaturakh na abrazivnuiu iznosostokost' stali 110G13L s dobavkami).

Glazkov, V.M., et al. *Stroitel'stvo v raionakh Vostochnoi Sibiri i Krainego Severa*, 1974, Vol.30, p.65-70, In Russian. 7 refs.

Novomelskii, I.U.D.

Steel structures, Steels, Abrasion, Low temperature tests.

34-382

Resistance of materials to wear at subzero temperatures. (Iznosostokost' materialov pri otritsatel'nykh temperaturakh).

Tytkin, M.A., et al. *Stroitel'stvo v raionakh Vostochnoi Sibiri i Krainego Severa*, 1974, Vol.30, p.78-81, In Russian.

Suslov, A.A.

Brittleness, Construction equipment, Excavation, Steels, Earthwork, Cold weather operation, Frozen ground.

34-383

Abrasive strength of instrument steel rubbing or knocking against sand paper at low temperature. (Iznosostokost' instrumental'nykh stali pri trenii i udare ob abrazivnuiu shkurku v usloviakh nizkikh temperatur).

Tarasov, G.F., *Stroitel'stvo v raionakh Vostochnoi Sibiri i Krainego Severa*, 1974, Vol.30, p.90-98, In Russian. 6 refs.

Steels, Brittleness, Abrasion, Friction, Frost resistance, Low temperature tests.

34-384

Developing high impact-abrasion strength fuse-on metals. (Razrabotka naplavlennogo metalla stolko v usloviakh udarno-abrazivnogo vozdeistviia).

Razikov, M.I., et al. *Stroitel'stvo v raionakh Vostochnoi Sibiri i Krainego Severa*, 1974, Vol.30, p.135-139, In Russian.

Mining, Construction equipment, Excavation, Cold weather performance, Metals, Brittleness.

34-385

Laboratory testing of wear resistant alloys at subzero temperatures. (Laboratornye ispytaniia iznosostokikh splavov pri otritsatel'nykh temperaturakh).

Grinberg, N.A., et al. *Stroitel'stvo v raionakh Vostochnoi Sibiri i Krainego Severa*, 1974, Vol.30, p.140, In Russian.

Belikova, N.A.

Metals, Excavation, Brittleness, Low temperature tests, Laboratory techniques.

- 34-386**  
Selecting fuse-on metals for rapidly wearing details of construction and excavation machines working at sub-zero temperatures. (Vybór naplavochnykh materialov dlia bystroiznashivaiushchikhsia detalet rabochikh organov stroitel'nykh i dorozhnykh mashin, robotaiushchikh pri ponizhennykh temperaturakh). Suslov, A.A. *Stroitel'stvo v raionakh Vostochnoi Sibiri i Krainego Severa*, 1974, Vol.30, p.141-143. In Russian.  
Excavation, Metals, Brittleness, Earthwork, Cold weather construction, Frozen ground.
- 34-387**  
Technological means of increasing wear resistance of fused-on metals. (Tekhnologicheskie sposoby uvelichenia iznosostoičnosti naplavok). Ermolaev, S.V. *Stroitel'stvo v raionakh Vostochnoi Sibiri i Krainego Severa*, 1974, Vol.30, p.143-146. In Russian. 2 refs.  
Metals, Frost resistance, Excavation, Frozen ground.
- 34-388**  
Wear of steel rubbing against frozen ground. (Ob iznashivani stali pri trenii o merzlyi grunt). Dorodnyi, V.I. *Stroitel'stvo v raionakh Vostochnoi Sibiri i Krainego Severa*, 1974, Vol.30, p.160-164. In Russian. 7 refs.  
Excavation, Friction, Frozen ground, Abrasion, Earthwork.
- 34-389**  
Abrasive strength of polymers at low temperatures. (Abrazivnaia iznosostoičnost' polimernykh materialov pri nizkikh temperaturakh). Koval'chuk, L.P. *Stroitel'stvo v raionakh Vostochnoi Sibiri i Krainego Severa*, 1974, Vol.30, p.164-167. In Russian.  
Construction materials, Polymers, Frost resistance, Abrasion, Low temperature tests.
- 34-390**  
Wear resistance of self-lubricating polymers under natural cold conditions. (Iznosostoičnost' samosmazyvaiushchikhsia polimernykh materialov v usloviakh estestvennogo kholodaj). Cherskii, I.N. *Stroitel'stvo v raionakh Vostochnoi Sibiri i Krainego Severa*, 1974, Vol.30, p.167-170. In Russian. 4 refs.  
Construction materials, Polymers, Plastics, Cold weather tests.
- 34-391**  
Wear of machines working at low temperatures. (Eksploatatsionnyi iznos mashin pri nizkikh temperaturakh). Kashcheev, V.N., et al. *Stroitel'stvo v raionakh Vostochnoi Sibiri i Krainego Severa*, 1974, Vol.30, p.183-188. In Russian. 8 refs.  
Construction equipment, Excavation, Cold weather performance, Abrasion, Metals, Brittleness, Frozen ground.
- 34-392**  
Studying the process of frozen ground cutting with tools of different shapes. (Issledovanie protsessa rezaniia merzlogo grunta zub'iami razlichnoi formy). Sokolov, L.K., et al. *Stroitel'stvo v raionakh Vostochnoi Sibiri i Krainego Severa*, 1974, Vol.30, p.193-200. In Russian. 2 refs.  
Karnaikhov, A.V., Bondarenko, V.P.  
Excavation, Frozen ground, Steels, Abrasion, Brittleness.
- 34-393**  
Increasing wear resistance of excavator cutting tools in frozen ground. (Povyshenie iznosostoičnosti rabochego instrumenta zemleroiynykh mashin, razrabatyvaushchikh merzlye grunty). Marchenko, A.I. *Stroitel'stvo v raionakh Vostochnoi Sibiri i Krainego Severa*, 1974, Vol.30, p.200-205. In Russian.  
Abrasion, Excavation, Earthwork, Frozen ground.
- 34-394**  
Studying the strength of cutting tools of trenching equipment working in frozen ground. (Issledovanie stoičnosti rezhushego instrumenta transheinykh ekskavatorov pri razrabotke merzlykh gruntov). Bondarenko, V.P., et al. *Stroitel'stvo v raionakh Vostochnoi Sibiri i Krainego Severa*, 1974, Vol.30, p.205-210. In Russian. 2 refs.  
Sokolov, L.K., Karnaikhov, A.V.  
Excavation, Trenching, Earthwork, Frozen ground.
- 34-395**  
Calculating the wear of cutting tools of bucketless trench excavators in frozen ground. (Raschet iznosa reztsov beskovshovykh transeekopatelet pri razrushenii merzlykh gruntov). Basov, I.G., et al. *Stroitel'stvo v raionakh Vostochnoi Sibiri i Krainego Severa*, 1974, Vol.30, p.210-213. In Russian. 2 refs.  
Berdnikov, M.P., Leshchmer, V.B.  
Abrasion, Excavation, Steels, Earthwork, Frozen ground.
- 34-396**  
Wear of heat-treated steel and alloy cutting tools in frozen peat. (Iznos reztsov iz termooobrabotannoi stali i splava pri rezanii merzlogo torfaj). Gorbunov, V.F., et al. *Stroitel'stvo v raionakh Vostochnoi Sibiri i Krainego Severa*, 1974, Vol.30, p.213-217. In Russian.  
Zelinger, F.F., Loskutnikov, N.A., Plotnikov, M.S.  
Peat, Excavation, Steels, Earthwork, Frozen ground.
- 34-397**  
Experimental study of cutting tools of mechanical shovels working in frozen ground. (Eksperimental'nye issledovaniia rabochikh organov odnokovshovykh ekskavatorov, razrabatyvaushchikh merzlye grunty). Petukhov, P.Z., et al. *Stroitel'stvo v raionakh Vostochnoi Sibiri i Krainego Severa*, 1974, Vol.30, p.218-219. In Russian.  
Novenko, A.V.  
Excavation, Cold weather performance, Earthwork, Frozen ground.
- 34-398**  
Wear resistance of teeth of the E-652 bucket excavator. (Iznosostoičnost' zub'ev kovshet ekskavatora E-652). Koval'chuk, V.A., et al. *Stroitel'stvo v raionakh Vostochnoi Sibiri i Krainego Severa*, 1974, Vol.30, p.219-223. In Russian. 3 refs.  
Barbashina, L.V., Bulgakov, E.N., Verpeta, G.S.  
Excavation, Moraines, Earthwork, Frozen ground.
- 34-399**  
Friction and wear of carbon steels at low temperatures. (O mekhanizme trenia i iznashivaniia uglerodistykh staley v usloviakh nizkikh temperatur). Golego, N.N., et al. *Stroitel'stvo v raionakh Vostochnoi Sibiri i Krainego Severa*, 1974, Vol.30, p.262-267. In Russian. 4 refs.  
Kul'gavyl, E.A., Kruchenok, I.L.  
Steels, Brittleness, Fatigue (materials), Low temperature tests.
- 34-400**  
Wear resistance of some steels and fuse-on metals under different ground excavation conditions. (Dinamika izmeneniia iznosostoičnosti nekotorykh staley i naplavok pri raznykh usloviakh razrusheniia gruntov). Iuzhakov, I.V., et al. *Stroitel'stvo v raionakh Vostochnoi Sibiri i Krainego Severa*, 1974, Vol.30, p.276-278. In Russian.  
Excavation, Frozen ground, Earthwork.
- 34-401**  
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DLC TH4820.R427  
Large panel buildings, Residential buildings, Lightweight concrete, Thermal insulation, Prefabrication, Panels, Concrete strength, Waterproofing, Frost resistance, Wind factors.
- 34-402**  
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Swamps, Transportation, Motor vehicles, Airships, Tundra, Taiga.
- 34-403**  
Special means of transportation on land in West Siberia. (Spetsial'nye nazemnye transportnye sredstva dlia Zapadnoi Sibiri). Vladimirov, A.B., et al. *Promyshlennyi transport*, July 1979, No.7, p.4-7.  
El'tes, M.I., Matskov, L.N.  
Swamps, Air cushion vehicles, Transportation, Construction equipment, Petroleum industry.
- 34-404**  
Propelling devices for all-terrain vehicles. (Dvizhitei vnedorozhnogo transportnogo sredstva). Gorbeshko, M.V., et al. *Promyshlennyi transport*, July 1979, No.7, p.7. In Russian. 2 refs.  
Romanov, V.V.  
All terrain vehicles, Propellers, Tracked vehicles, Trafficability, Vehicle wheels, Swamps.
- 34-405**  
Aircraft for transporting large-size and heavy cargo. (O dostavke krupnogabaritnykh i tiazhelevykh gruzov vozdušnym transportom). Mostovoi, I.U.S. *Promyshlennyi transport*, July 1979, No.7, p.8-9. In Russian.  
Transportation, Airships, Construction equipment.
- 34-406**  
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Transportation, Airships, Design.
- 34-407**  
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Transportation, Airships, Construction equipment.
- 34-408**  
Intrinsic surface disorder in ice near the melting point. Golecki, J., et al. *Journal of physics C: solid state physics*, Oct. 28, 1978, 11(20), p.4229-4237, 56 refs.  
Jaccard, C.  
Ice surface, Ice crystal structure, Melting points, Viscosity, Ice deterioration, Ice electrical properties, Ice mechanics, Ice melting, Temperature effects.
- 34-409**  
Numerical simulation of the annual cycle of sea ice in the Arctic and Antarctic. Parkinson, C.L. Columbus, Ohio State University, 1977, 191p. University Microfilms order No.78-5905. Ph.D. thesis. Refs. p.179-191.  
Sea ice, Dynamic properties, Ablation, Ice accretion, Thickness, Water temperature, Thermodynamics, Heat flux, Wind factors, Mathematical models.  
This work describes the construction of and results from a numerical model simulating the yearly cycle of sea ice in both the northern and southern hemispheres. Both thermodynamic and dynamic processes are incorporated. The model simulates a reasonable yearly cycle of sea ice thickness and extent in both the Arctic and Antarctic. In the Antarctic, the ice expands from a minimum in March to a maximum in late August, remaining close to the continent in the former month and extending northward of 60S in the latter month. Maximum thicknesses are about 1.4 m. Modeled ice concentrations correctly reveal a more compact ice cover in the northern hemisphere than in the southern. In the Antarctic, simulated velocities reveal predominantly westerly motion north of 58S, with smaller scale cyclonic motions closer to the continent.
- 34-410**  
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Gow, A.J.  
Ice cores, Ice crystal structure, Ice acoustics, Ice sheets, Anisotropy, Wave propagation, Ultrasonic tests, Glacier flow, Ice crystal size, Shear properties, Antarctica—Byrd Station, Antarctica—Little America Station.  
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- 34-411**  
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Weeks, W.F., Frank, M.  
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- 34-412**  
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Sea ice, Climatic changes, Mathematical models, Oscillations, Oceans.

- 34-413**  
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- 34-414**  
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Foundation of Canada Engineering Corporation, Ltd., *Arctic Petroleum Operators Association, Calgary, Alta. Report*, Mar. 1973, APOA 52-1, n.p.  
Lake ice, Ice strength, Compressive properties.
- 34-415**  
Extent and growth pattern of landfast ice in the southern Beaufort Sea—winter 1972-73.  
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Sea ice distribution, Ice growth, Pressure ridges, Aerial surveys, Fast ice.
- 34-416**  
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- 34-417**  
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Sea ice, Pressure ridges, Statistical analysis, Ice keels, Ice sails.
- 34-418**  
Technical specifications of a large Arctic truck for Imperial Oil Limited Calgary, Alberta.  
Rymes (J.E.) Engineering, Ltd., *Arctic Petroleum Operators Association, Calgary, Alta. Report*, Sep. 1973, APOA 56-1, var. p., 8 refs.  
Vehicles, Polar regions.
- 34-419**  
Beaufort Sea summer ice testing project.  
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- 34-420**  
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Environmental impact, Meteorology, Climatology, Hydrology, Animals, Landforms, Arctic landscapes, Marine biology, Deltas, Natural gas.
- 34-421**  
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Lake ice, Ice strength, Ice temperature, Dynamic loads.
- 34-422**  
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Nuttall, J.B., Sego, D.  
Lake ice, Ice mechanics, Ice strength, Strain tests, Compressive properties.
- 34-423**  
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Sea ice, Ice conditions, Meteorological data, Icebergs.
- 34-424**  
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- 34-425**  
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Aerial surveys, Ice surveys, Marine biology, Animals, Distribution.
- 34-426**  
Cruise 77-1, February, 1977. Environmental aspects of the cruise to Davis Strait and the Labrador coast.  
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- 34-427**  
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Oceanographic surveys, Sea ice, Ice conditions, Meteorological data, Ice floes, Drift, Water temperature, Salinity.
- 34-428**  
Biological studies, offshore cruises 77-2 and 77-3, April-June, 1977 in the Davis Strait.  
MacLaren Atlantic, Ltd., *Arctic Petroleum Operators Association, Calgary, Alta. Report*, May 1978, APOA 134-1, 134-1A, var. p., 24 refs.  
Oceanographic surveys, Water chemistry, Water temperature, Marine biology, Microbiology, Davis Strait.
- 34-429**  
Report on Cruise II, July 1976. Environmental aspects of Imperial Oil cruise to Flemish Pass and Davis Strait.  
MacLaren Atlantic, Ltd., *Arctic Petroleum Operators Association, Calgary, Alta. Report*, Dec. 1976, APOA 135-1, var.p., Numerous refs.  
Oceanographic surveys, Water temperature, Salinity, Marine biology.
- 34-430**  
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Ocean currents, Water temperature, Salinity, Marine biology, Oceanographic surveys.
- 34-431**  
Report on Cruise III, October-November 1976 and Cruise IV, November-December, 1976. Environmental aspects of the Imperial Oil cruises to Davis Strait, Hudson Strait and Flemish Pass.  
MacLaren Atlantic, Ltd., *Arctic Petroleum Operators Association, Calgary, Alta. Report*, Mar. 1977, APOA 135-3, var.p., Numerous refs.  
Oceanographic surveys, Marine biology, Water chemistry.
- 34-432**  
Rheological fundamentals of soil mechanics. (Reologicheskie osnovy mekhaniki gruntov).  
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- 34-433**  
Soils along the Baykal Amur railroad. (Pochvy zony BAM).  
Kovalev, R.V., ed. Novosibirsk, Nauka, 1979, 304p., In Russian. For selected papers see 34-434 through 34-465. Refs. passim.  
Cryogenic soils, Soil formation.
- 34-434**  
Automorphic soils of the Baykal highlands. (Avtomorfnye pochvy Baikalskoi gornoi oblasti).  
Kuz'min, V.A., Pochvy zony BAM (Soils along the Baykal Amur railroad) edited by R.V. Kovalev. Novosibirsk, Nauka, 1979, p.5-12, In Russian. 12 refs.  
Alpine landscapes, Alpine tundra.
- 34-435**  
Soil classification and land resources of the Irkutsk area. (Pochvennoe raionirovanie i zemel'nye resursy Irkutskoi oblasti).  
Kolesnichenko, V.T., et al. Pochvy zony BAM (Soils along the Baykal Amur railroad) edited by R.V. Kovalev. Novosibirsk, Nauka, 1979, p.13-24, In Russian. 17 refs.  
Rynks, I.N.  
Cryogenic soils, Mapping, Taiga, Charts.
- 34-436**  
Soils in the western section of BAM and prospects for their agricultural development. (Pochvennyi pokrov zapadnogo uchastka BAM i perspektivy ego sel'skokhoziaistvennogo osvoeniia).  
Kolesnichenko, V.T., Pochvy zony BAM (Soils along the Baykal Amur railroad) edited by R.V. Kovalev. Novosibirsk, Nauka, 1979, p.24-33, In Russian. 18 refs.  
Taiga, Cryogenic soils, Soil profiles, Soil chemistry, Podsol.
- 34-437**  
Muysk Basin soils and their agricultural development. (Pochvennye resursy Muyskoi kotloviny i perspektivy ikh sel'skokhoziaistvennogo ispol'zovaniia).  
Vtorushin, V.A., et al. Pochvy zony BAM (Soils along the Baykal Amur railroad) edited by R.V. Kovalev. Novosibirsk, Nauka, 1979, p.34-42, In Russian. 4 refs.  
Cryogenic soils, Podsol, Swamps, Peat, Soil profiles, Taiga, Soil chemistry.
- 34-438**  
Soil resources of BAM zone swamps and their agricultural development. (Pochvennye resursy marel'nykh zony BAM i puti polucheniia na nikh sel'skokhoziaistvennoi produktcii).  
Makeev, O.V., et al. Pochvy zony BAM (Soils along the Baykal Amur railroad) edited by R.V. Kovalev. Novosibirsk, Nauka, 1979, p.42-49, In Russian. 4 refs.  
Gershevich, E.G., Khudiakov, O.I.  
Cryogenic soils, Swamps, Peat, Mosses, Taiga, Land reclamation.
- 34-439**  
Soils of the central Selezdzh River area and their economic development. (Pochvennyi pokrov tsentral'noi chasti basseina r. Selezdzh i vozmozhnosti ego osvoeniia).  
Rybachuk, N.A., et al. Pochvy zony BAM (Soils along the Baykal Amur railroad) edited by R.V. Kovalev. Novosibirsk, Nauka, 1979, p.49-54, In Russian. 2 refs.  
Ivanov, G.I., Shchapova, L.N.  
Cryogenic soils, Lacustrine deposits, Clays, Soil formation, Taiga, Soil profiles, Swamps, Soil chemistry.
- 34-440**  
Evaluation and classification of soils in the Zeya-Bureya plain and areas adjacent to the BAM zone. (Raionirovanie i otsenka pochvy Zelsko-Bureinskoi ravniny i raionov priliegaiushchikh k zone BAM).  
Onishchuk, V.S., Pochvy zony BAM (Soils along the Baykal Amur railroad) edited by R.V. Kovalev. Novosibirsk, Nauka, 1979, p.54-59, In Russian. 6 refs.  
Cryogenic soils, Permafrost distribution, Soil formation, Mapping, Baykal Amur railroad.
- 34-441**  
Sod-carbonaceous soils of the Baykal Lake area. (Dernovo-karbonatnye pochvy Pribaikalia).  
Koposov, G.F., Pochvy zony BAM (Soils along the Baykal Amur railroad) edited by R.V. Kovalev. Novosibirsk, Nauka, 1979, p.60-68, In Russian. 8 refs.  
Cryogenic soils, Soil formation, Taiga, Soil profiles, Soil chemistry.
- 34-442**  
Soil regimes in the Chara River Basin and methods of their interpretation. (Pochvennye rezhimy v Charskoi kotlovine i sposoby ikh interpretatsii).  
Shchetnikov, A.I., Pochvy zony BAM (Soils along the Baykal Amur railroad) edited by R.V. Kovalev. Novosibirsk, Nauka, 1979, p.68-78, In Russian. 9 refs.  
River basins, Taiga, Landscape types, Soil formation, Soil profiles, Podsol, Cryogenic soils.

- 34-443**  
**Brown taiga soils in the upper part of the Urkan River Basin.** (O buro-taevnykh pochvakh verkhnei chasti basseina i Urkan). Ovchinnikov, S.M., et al. Pochvy zony BAM (Soils along the Baykal Amur railroad) edited by R.V. Kovalev, Novosibirsk, Nauka, 1979, p.78-89. In Russian. 6 refs.  
Shkhaev, V.G.  
**Taiga, Soil formation, Cryogenic soils, Soil profiles, Podsol.**
- 34-444**  
**Natural and economic aspects of protecting Siberian soils from erosion.** (Prirodno-khoziaistvennye aspekty zashchity pochv ot erozii v Sibiri). Orlov, A.D., Pochvy zony BAM (Soils along the Baykal Amur railroad) edited by R.V. Kovalev, Novosibirsk, Nauka, 1979, p.89-94. In Russian. 7 refs.  
**Cryogenic soils, Soil erosion, Protective vegetation.**
- 34-445**  
**Use and protection of lands in the northern Irkutsk region and the BAM zone.** (Okhrana i ispol'zovanie zemel' v severnykh rayonakh Irkutskoi oblasti i zony BAM). Belykh, A.G., et al. Pochvy zony BAM (Soils along the Baykal Amur railroad) edited by R.V. Kovalev, Novosibirsk, Nauka, 1979, p.95-99.  
Zabortsev, N.N.  
**Cryogenic soils, Soil erosion, Taiga, Environmental protection, Landscape types, Baykal Amur railroad.**
- 34-446**  
**Resistance of mountain and forest sod soils of the Baykal Lake area to erosion.** (Protivoerozionnaia ustoiчивost' gorno-lesnykh dernovykh pochv Pribaikalia). Kovalev, R.V., Pochvy zony BAM (Soils along the Baykal Amur railroad) edited by R.V. Kovalev, Novosibirsk, Nauka, 1979, p.100-111. In Russian. 8 refs.  
**Taiga, Soil erosion.**
- 34-447**  
**Forecasting water erosion of soils in the western part of the BAM zone (the upper Angara River Basin).** (Vodnaia eroziia pochv i prognoz ee proiavleniia v predelakh zapadnoi chasti zony BAM (Verkhneangarskaia kotlovina)). Reimkhe, V.V., Pochvy zony BAM (Soils along the Baykal Amur railroad) edited by R.V. Kovalev, Novosibirsk, Nauka, 1979, p.111-118. In Russian. 6 refs.  
**River basins, Water erosion, Cryogenic soils, Soil erosion, Land reclamation.**
- 34-448**  
**Specific nature of erosional processes in permafrost areas.** (Spetsifika proiavleniia erozionnykh protsessov v zone vechnoi merzloty). Orlov, A.D., et al. Pochvy zony BAM (Soils along the Baykal Amur railroad) edited by R.V. Kovalev, Novosibirsk, Nauka, 1979, p.118-124. In Russian. 11 refs.  
Popov, G.M.  
**Geocryology, Thermokarst, Soil erosion, Cryogenic soils, Ground ice, Solifluction.**
- 34-449**  
**Deflation of Barguzin Basin soils and economic utilization.** (Defliatsiia pochv Barguzinskoi kotloviny i puti ikh ratsional'nogo ispol'zovaniia). Namzhilov, N.B., Pochvy zony BAM (Soils along the Baykal Amur railroad) edited by R.V. Kovalev, Novosibirsk, Nauka, 1979, p.124-130. In Russian. 4 refs.  
**Cryogenic soils, Wind erosion, Soil formation, Lacustrine deposits, Sands, Steppes, Protective vegetation, Forest strips.**
- 34-450**  
**Erosional vulnerability of taiga soils in the eastern BAM zone during economic development.** (Eroziionnaia uязvимость taignykh pochv zony BAM (Vostochnoi chasti) pri ikh sel'skokhoziaistvennom osvoenii). Zashchene, E.B., Pochvy zony BAM (Soils along the Baykal Amur railroad) edited by R.V. Kovalev, Novosibirsk, Nauka, 1979, p.131-136. In Russian.  
**Taiga, Soil formation, Land development.**
- 34-451**  
**Fertility of cryogenic meadow-chernozem soils in the Yeravninskaya Basin (Buryat ASSR).** (Nekotorye voprosy plodorodii lugovo-chernozemnykh merzlykh pochv Yeravninskoi kotloviny (Buriatskaia ASSR)). Abasheeva, N.E., et al. Pochvy zony BAM (Soils along the Baykal Amur railroad) edited by R.V. Kovalev, Novosibirsk, Nauka, 1979, p.159-167. In Russian. 9 refs.  
Chumidtorzhieva, G.D., Dugarov, V.I.  
**Cryogenic soils, Meadow soils, Chernozem, Forest soils, Steppes.**
- 34-452**  
**Classification of soils in the far northeastern USSR.** (Klassifikatsiia pochv Krainego Severo-Vostoka SSSR). Ignatenko, I.V., Pochvy zony BAM (Soils along the Baykal Amur railroad) edited by R.V. Kovalev, Novosibirsk, Nauka, 1979, p.168-176. In Russian. 35 refs.  
**Cryogenic soils, Soil classification, Active layer, Permafrost depth, Taiga.**
- 34-453**  
**Soil zones of Central Yakutia.** (O pochvennykh zonakh Tsentral'noi Iakutii). Konorovskii, A.K., Pochvy zony BAM (Soils along the Baykal Amur railroad) edited by R.V. Kovalev, Novosibirsk, Nauka, 1979, p.176-183. In Russian. 15 refs.  
**Cryogenic soils, Taiga, Soil classification, Charts, Alasay, Chernozem.**
- 34-454**  
**Genetic and agricultural peculiarities of gray non-podzolized cryogenic soils in Transbaikalia.** (Geneticheskie i agroproduktivnyye osobennosti serykh lesnykh neopodzolennykh merzlotnykh pochv Zabaikalia). Ishchenov, I.A., Pochvy zony BAM (Soils along the Baykal Amur railroad) edited by R.V. Kovalev, Novosibirsk, Nauka, 1979, p.184-190. In Russian. 14 refs.  
**Forest soils, Steppes, Cryogenic soils, Permafrost depth, Soil formation, Soil profiles.**
- 34-455**  
**Genetic peculiarities of gray forest soils in larch grass forests of the Krasnoyarsk area.** (Geneticheskie osobennosti serykh lesnykh pochv zony listvennykh travianykh lesov Krasnoyarskogo kraia). Gogolev, I.N., et al. Cryogenic gray larch forest soils. Pochvy zony BAM (Soils along the Baykal Amur railroad) edited by R.V. Kovalev, Novosibirsk, Nauka, 1979, p.190-201. In Russian. 4 refs.  
Kraskha, E.N.  
**Forest soils, Soil profiles, Podsol, Soil chemistry, Cryogenic soils.**
- 34-456**  
**Soil structure and types of farm lands in the grassy larch forests of the Krasnoyarsk area.** (Struktura pochvennogo pokrova i tipologii sel'skokhoziaistvennykh zemel' zony listvennykh travianykh lesov Krasnoyarskogo kraia). Kraskha, E.N., Pochvy zony BAM (Soils along the Baykal Amur railroad) edited by R.V. Kovalev, Novosibirsk, Nauka, 1979, p.201-210. In Russian. 5 refs.  
**Cryogenic soils, Forest soils, Podsol, Soil formation, Permafrost depth, Soil structure.**
- 34-457**  
**Structure of soils in the steppe geosystems of the Abakan and Yenisey interfluvium.** (Struktura pochvennogo pokrova stepnykh geosistem, mezhdurech'ia Abakana i Eniseia). Kochurov, B.I., Pochvy zony BAM (Soils along the Baykal Amur railroad) edited by R.V. Kovalev, Novosibirsk, Nauka, 1979, p.210-217. In Russian. 13 refs.  
**Cryogenic soils, Saline soils, Chernozem, Soil profiles, Soil chemistry.**
- 34-458**  
**Mountain and forest chernozem-like soils on the eastern slope of Kuznetskiy Alatau.** (Gorno-lesnye chernozemovidnye pochvy vostochnogo sklona Kuznetskogo Alatau). Tanzybaev, M.G., Pochvy zony BAM (Soils along the Baykal Amur railroad) edited by R.V. Kovalev, Novosibirsk, Nauka, 1979, p.217-224. In Russian. 10 refs.  
**Taiga, Forest soils, Mountain soils, Cryogenic soils, Soil formation.**
- 34-459**  
**Bioenergetic diagnostics of mountain-forest soils in the Amur River area.** (K bioenergeticheskoi diagnostike gorno-lesnykh pochv Priamuria). Sapozhnikov, A.P., et al. Pochvy zony BAM (Soils along the Baykal Amur railroad) edited by R.V. Kovalev, Novosibirsk, Nauka, 1979, p.224-230. In Russian. 9 refs.  
Krupskaya, I.T., Sibgatullina, I.Kh.  
**Cryogenic soils, Mountain soils, Forest soils, Soil formation, Heat transfer, Mass transfer.**
- 34-460**  
**Flood-induced transformations in soils.** (Transformatsiia pochv pod vlianiem zatopleniia). Seryshev, V.A., et al. Pochvy zony BAM (Soils along the Baykal Amur railroad) edited by R.V. Kovalev, Novosibirsk, Nauka, 1979, p.237-250. In Russian. 14 refs.  
**Cryogenic soils, Flooding, Soil chemistry, Soil composition, Lakes.**
- 34-461**  
**Influence of microorganisms on ferrous oxide dynamics in soils of the Angara River area.** (Vlianie mikroorganizmov na dinamiku zakisnogo zheleza v pochvakh Priangaria). Influence of microorganisms on ferrous iron dynamics in soils of the Angara River area. Pochvy zony BAM (Soils along the Baykal Amur railroad) edited by R.V. Kovalev, Novosibirsk, Nauka, 1979, p.260-265. In Russian. 14 refs.  
Gorbachev, V.N.  
**Cryogenic soils, Soil microbiology, Soil chemistry, Taiga.**
- 34-462**  
**Microbiological characteristics of cryogenic sod-podsol soils (Yeravninskaya Basin, Buryat ASSR).** (Mikrobiologicheskie kharakteristiki dernovo-podzolnykh merzlotnykh pochv (Yeravninskaiia kotlovina Buriatskoi ASSR)). Nimaeva, S.Sh., et al. Pochvy zony BAM (Soils along the Baykal Amur railroad) edited by R.V. Kovalev, Novosibirsk, Nauka, 1979, p.266-274. In Russian. 4 refs.  
Dugarov, V.I.  
**Cryogenic soils, Forest soils, Taiga, Soil formation, Permafrost depth, Soil profiles.**
- 34-463**  
**Hydrothermal regime of cryogenic sod-taiga soils (Yeravninskaya Basin, Buryat ASSR).** (Gidrotermicheskiy rezhim dernovo-taignykh merzlotnykh pochv Yeravninskoi kotloviny (Buriatskaia ASSR)). Dugarov, V.I., Pochvy zony BAM (Soils along the Baykal Amur railroad) edited by R.V. Kovalev, Novosibirsk, Nauka, 1979, p.274-282. In Russian. 9 refs.  
**Cryogenic soils, Hydrothermal processes, Permafrost depth, Soil temperature, Soil water.**
- 34-464**  
**Role of permafrost in the hydrothermal regime of soils.** (Rol' mnogoletniei merzloty v formirovanii gidrotermicheskogo rezhima pochv). Savvinov, D.D., Pochvy zony BAM (Soils along the Baykal Amur railroad) edited by R.V. Kovalev, Novosibirsk, Nauka, 1979, p.282-287. In Russian. 13 refs.  
**Soil water migration, Tundra, Taiga.**
- 34-465**  
**Phosphorus regime of gray forest soils in the East Siberian sub-taiga and soil formation.** (Fosfornyi rezhim serykh lesnykh pochv podtaigi Vostochnoi Sibiri v svyazi s osobennostiami pochvoobrazovaniia). Kholopova, R.V., Pochvy zony BAM (Soils along the Baykal Amur railroad) edited by R.V. Kovalev, Novosibirsk, Nauka, 1979, p.287-295. In Russian. 13 refs.  
**Taiga, Soil formation.**
- 34-466**  
**Thermal stress intensity factors for a fixed strip containing edge cracks.** (Koeffitsienty intensivnosti temperaturnykh napriazhenii v zashchemlennoi poloze s kraevymi treshchinami). Pashchenko, V.I., et al. Leningrad Vsesoiuznyi nauchno-issledovatel'skii institut gidrotekhniki. Izvestiia 1978, No.120, p.83-87. In Russian. 8 refs.  
Trapeznikov, L.P.  
**Plates, Thermal stresses, Cracking (fracturing), Design.**



34-467

**Thermal stress intensity factors for a strip with transverse internal cracks.** [Koeffitsienty intensivnosti temperaturnykh napriazhenii dlia polosy s vnutrennimi poperechnymi treshchinami]. Pashchenko, V.I., et al, *Leningrad. Vsesoiuznyi nauchno-issledovatel'skii institut gidrotekhniki. Izvestiia*, 1978, Vol.120, p.58-63, In Russian. 6 refs. Trapeznikov, L.P.

**Thermal stresses, Cracking (fracturing), Design.**

34-468

**Approximate thermal stress analysis of a concrete structure, erected block-by-block, allowing for concrete creep.** (Priblizhennii metod rashcheta termonapriazhennogo sostoiianiia (s ucheto polzuchesti materiala) betonogo massiva v protsesse ego poblochnogo narashchivaniia). Pliat, Sh.N., et al, *Leningrad. Vsesoiuznyi nauchno-issledovatel'skii institut gidrotekhniki. Izvestiia*, 1978, Vol.120, p.64-69, In Russian. 3 refs. Ovchinnikova, T.T.

**Concrete structures, Dams, Concrete placing, Thermal stresses, Relaxation (mechanics).**

34-469

**Extreme cooling curves of concrete structures.** [K vo-prosu ob ekstremal'noi krivoi okhlazhdeniia betonnykh massivov]. Pliat, Sh.N., et al, *Leningrad. Vsesoiuznyi nauchno-issledovatel'skii institut gidrotekhniki. Izvestiia*, 1978, Vol.120, p.70-72, In Russian. 2 refs. Sheinker, N.I.A.

**Concrete structures, Concrete hardening, Concrete freezing, Cooling rate, Fracturing, Frost resistance.**

34-470

**Approximate determination of stress relaxation coefficients in thermal creep problems.** (Priblizhennii sposob opredeleniia koeffitsienta zatukhaniia napriazhenii v zadache termopolzuchestii). Tsybin, A.M., et al, *Leningrad. Vsesoiuznyi nauchno-issledovatel'skii institut gidrotekhniki. Izvestiia*, 1978, Vol.120, p.73-76, In Russian. 2 refs. Sheinker, N.I.A.

**Hydraulic structures, Dams, Concrete structures, Thermal stresses, Relaxation (mechanics), Creep, Analysis (mathematics).**

34-471

**Vibration of structures built on viscoelastic foundations.** (O kolebaniiaakh sooruzhenii na viazko-uprugom osnovanii). Shul'man, S.G., *Leningrad. Vsesoiuznyi nauchno-issledovatel'skii institut gidrotekhniki. Izvestiia*, 1978, Vol.120, p.77-80, In Russian. 4 refs. **Foundations, Earthquakes, Buildings, Ground thawing, Mathematical models, Viscoelasticity, Vibrations.**

34-472

**Application of satellite images for monitoring snowline in the Yukon and Northwest Territories.** Dey, B., et al, *Polar record*, May 1979, 19(122), p.473-483, 18 refs. Moore, H., Gregory, A.F. **Snow cover, Snowmelt, Mapping, Spaceborne photography, Snow line, Models, Canada—Northwest Territories, Canada—Yukon Territory.**

34-473

**Fifty-second annual report on the work of the Scott Polar Research Institute.** *Polar record*, May 1979, 19(122), p.519-526.

**Radio echo soundings, Ice sheets, Sea ice.**

The activities of the Scott Polar Research Institute for the year ending Sep. 30, 1978 are summarized under the following topics: teaching and research, library and information service, international activities, finance, and lectures. In addition, publications, grants, visiting scholars, staff and research students, and gifts are listed. The principal achievements of the airborne radio echo sounding of polar ice sheets program were filling in gaps in the 100-m flightline network over east Antarctica and extending it westwards. The previous sounding grid over Marie Byrd Land was extended eastwards towards the Pensacola and Ellsworth mountains and ten glaciological profiles were flown over various areas. For the first time, simultaneous magnetic profiles were obtained on radio echo flights.

34-474

**SCAR Working Group on Glaciology.** Scientific Committee on Antarctic Research, *Polar record*, May 1979, 19(122), SCAR bulletin No.62, May 1979, p.527-532, 2 refs.

**Ice sheets, Sea ice, Glacier ice, Snow surveys, Ice shelves.**

The meeting of the glaciology working group was held in Ottawa, Canada, Aug. 19-20, 1978. The national and international activities reported are briefly summarized. Field studies are being conducted by Argentina, Australia, Chile, France, Japan, Norway, USSR, United Kingdom and the United States. The Federal Republic of Germany plans to start geophysical

and glaciological studies in 1981. The international activities include the international and the Antarctic Peninsula glaciology projects, glaciological aspects of climate studies, a satellite image atlas of glaciers, a world glacier inventory, a third antarctic glaciology symposium, satellite glaciology, radio echo sounding flights, ice sheet modelling a further conference on icebergs, and ice shelf and sea ice studies. The proceedings of the meeting also included elections, proposals for future meetings, and recommendations.

34-475

**Ice movements in the Beaufort Sea 1973-1975: determination by ERTS imagery.**

Sobczak, L.W., *Journal of geophysical research*, Mar. 20, 1977, 82(9), p.1413-1418, 7 refs.

**Sea ice distribution, Drift, Remote sensing, Wind factors, Mapping, Beaufort Sea.**

34-476

**Thermal regime of a prairie snowcover.**

Granger, R.J., et al, *Soil Science Society of America. Journal*, Sep.-Oct. 1977, 41(5), p.839-842, 8 refs.

Chanasyk, D.S., Male, D.H., Norum, D.I. **Snowmelt, Meltwater, Thermal regime, Soil temperature, Solar radiation, Soil water, Air temperature, Diurnal variations, Heat flux, Snow cover.**

34-477

**Critical exponents and scaling laws for a zero-temperature phase transition in some rigorously solvable models.**

Georgiev, G.I., et al, *Journal of physics C: solid state physics*, Nov. 14, 1978, 11(21), p.L877-L879, 4 refs. Milev, N.V.

**Phase transformations, Temperature effects, Mathematical models.**

34-478

**Use of model ice to simulate ice action on offshore structures.**

Michel, B., *Arctic Petroleum Operators Association. Calgary, Alta. Report*, Oct. 1972, APOA 41-1, 81p., 9 refs.

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34-481

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34-483

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Overall, J.

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34-488

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34-490

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34-491

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34-492

**Primary data collected for the 1977 Davis Strait biological programme and analysed prior to December 1977.**

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**Data processing, Oceanographic surveys, Marine biology, Microbiology, Water temperature, Salinity.**

34-493

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MacLaren Atlantic, Ltd., *Arctic Petroleum Operators Association. Calgary, Alta. Report*, May 1978, APOA 138-4, 138-4A, var.p., 21 refs.

**Marine biology, Water chemistry, Animals, Surveys, Biomass.**

34-494

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MacLaren Atlantic, Ltd., *Arctic Petroleum Operators Association. Calgary, Alta. Report*, Dec. 1977, APOA 138-5, 138-5A, var.p., 17 refs.

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34-495

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- 34-497**  
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- 34-498**  
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- 34-499**  
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- 34-501**  
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- 34-503**  
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- 34-504**  
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- 34-507**  
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- 34-511**  
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Rymes (J.E.) Engineering, Ltd., Arctic Petroleum Operators Association, Calgary, Alta. Report, Jan. 1972, APOA 21-1, var. p., 12 refs.  
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- 34-512**  
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- 34-513**  
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- 34-515**  
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Nuttall, J.B., et al. Arctic Petroleum Operators Association, Calgary, Alta. Report, Feb. 1972, APOA 16-2, 47p., 5 refs.  
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- 34-517**  
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- 34-518**  
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- 34-520**  
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Hydraulic structures, Roads, Buildings, Permafrost beneath structures, Baykal Amur railroad, Research projects.
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- 34-523**  
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Koptelov, E.P.  
Swamps, Peat, Drainage, Soil water migration, Analysis (mathematics).
- 34-524**  
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Ovsienko, S.N., et al. *Akademii nauk SSSR. Doklady*, June 1979, 246(5), p.1066-1070, In Russian. 4 refs.  
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Sea ice, Ice melting, Drift, Ice edge, Mathematical models.
- 34-525**  
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Nefedova, V.B., Moscow. *Universitet. Vestnik. Seriya 5 Geografiia*, July-Aug. 1979, No.4, p.42-47, In Russian with English summary. 6 refs.  
Landscape types, Tundra, Taiga, Classifications, Biomass, Economic development.
- 34-526**  
Application methods for determining biologic activity of paluded sod-podsol soils. (Opredelenie biologicheskoi aktivnosti drevno-podzolistykh zabolochennykh pochv aplikatsionnymi metodami).  
IAkovlev, A.S., Moscow. *Universitet. Vestnik. Seriya 17 Pochvovedenie*, Apr.-June 1979, No.2, p.63-67, In Russian with English summary. 7 refs.  
Swamps, Soil formation, Podsol, Soil microbiology.
- 34-527**  
Major types of antarctic ice shores.  
Dubrov, L.I., *Polar geography*, Apr.-June 1979, 3(2), p.69-74, 12 refs. For Russian original see 31-3522 or F-18389.  
Ice shelves, Calving, Classifications, Antarctica.  
A classification of antarctic ice shores distinguishes two morphologic types: rocky ice (grounded ice) and floating ice. In terms of the conditions of formation of these types of shores, the following genetic types are distinguished: grounded, moraine-calved, the mal abrasion, ablation, floating, calved as well as unusual accretion shores and shores formed by old fast ice (Auth.).
- 34-528**  
Linear elements of sea-ice relief.  
Kupetski, V.N., *Polar geography*, Apr.-June 1979, 3(2), p.75-81, 26 refs. For Russian original see 31-2959 or F-18191.  
Sea ice, Ice surface.

The empirical evidence suggests that all types of ice display linear elements that can be compared with lineaments in the earth's surface. The basic global jointing pattern of NE-SW and NW-SE appears to extend to sea ice, and ice-navigation experience suggests that movement is easier along these courses while courses close to the N-S and E-W directions result more frequently in ships becoming icebound. Closer study of ice jointing patterns may thus offer new prospects for ice navigation, especially in connection with the establishment of new high-latitude icebreaker routes. The linear relief elements of antarctic sea ice and ice shelves, as well as ice cover in both the interior and marginal parts of the continent are discussed.

### 34-529

**Zonal characteristics of polygonal ice-wedge relief in Western Siberia.**

Shamanoval, I.L. *Polar geography*, Apr.-June 1979, 3(2), p.82-87, 4 refs. For Russian original see 33-1644.

**Polygonal topography, Patterned ground, Ice veins, Ice wedges, Ice formation, Ground ice.**

### 34-530

**Zoo-geography of the Yamal-Gydan area, Western Siberia.**

Rutlevskii, G.L. *Polar geography*, Apr.-June 1979, 3(2), p.88-117, 30 refs. Translated from *Iamal'-Gydanskaya oblast' fiziko-geograficheskaya kharakteristika*, ed. by R.K. Sisko. Leningrad, Gidrometeoizdat, 1977, p.226-260.

**Animals, Ecosystems, Tundra, Biogeography.**

### 34-531

**Frost penetration beneath black-painted concrete canal lining.**

Jones, C.W. *U.S. Bureau of Reclamation Engineering and Research Center. Report*, Apr. 1979, REC-ERC-79-5, 3 p., 3 refs.

**Frost penetration, Solar radiation, Soil temperature, Concrete structures, Channels (waterways), Color.**

### 34-532

**Building and operating winter roads in Canada and Alaska.**

Adam, K.M. *Environmental studies No.4*, Ottawa, Department of Indian and Northern Affairs, 1978, 221p., Refs. p.181-194.

**Snow roads, Ice roads, Winter maintenance, Cold weather operation, Ice crossings, Road maintenance, Route surveys, Canada.**

### 34-533

**Random differential equations as models of ecosystems—3. Bayesian inference for parameters.**

Tiwari, J.L., et al. *Mathematical biosciences*, Apr. 1978, 38(3/4), p.247-258, 15 refs.

**Hobbie, J.E., Peterson, B.J. Biomass, Ecosystems, Mathematical models, Plant ecology, Algae.**

### 34-534

**Research by the Institute of Polar Studies in Glacier Bay National Monument, Alaska.**

Goldthwait, R.P., et al. *Conference on Scientific Research in the National Parks*, 1st, New Orleans, La., Nov. 1-12, 1976, Vol.2, Proceedings. Edited by R.M. Linn, 1976, p.815-821, 28 refs.

**McKenzie, G.D. Glaciology, Glacial geology, Ecology, Research projects, United States—Alaska—Glacier Bay National Monument.**

### 34-535

**Rheology of columnar-grained ice.**

Sinha, N.K., *Experimental mechanics*, Dec. 1978, 18(12), p.464-470, 22 refs.

**Ice creep, Rheology, Ice mechanics, Stress strain diagrams, Viscoelasticity, Analysis (mathematics), Experimentation.**

### 34-536

**Fighting snow disasters on roads in Schleswig-Holstein in the 1978/79 winter. (Die Bekämpfung der Schneekatastrophen im Winter 78/79 auf den Strassen in Schleswig-Holstein).**

Richter, K., *Strasse und Autobahn*, June 1979, 30(6), p.237-243, In German.

**Snow removal, Snow accumulation, Winter maintenance, Streets.**

### 34-537

**Winter service to the city of Bern. (Winterdienst in der Stadt Bern).**

Bietenharder, H., *Strasse und Verkehr*, May 1977, 63(5), p.173-174, In German.

**Snow removal, Ice prevention, Winter maintenance, Road maintenance, Streets.**

### 34-538

**Mass budget of the Lambert Glacier drainage basin, Antarctica.**

Allison, I., *Journal of glaciology*, 1979, 22(87), p.223-235, 30 refs.

**Glacier mass balance, Glacial hydrology, Ice shelves, Ice cover thickness, Glacier ablation, Antarctica—Lambert Glacier, Antarctica—Prince Charles Mountains.**

Estimates have been made of the mass budget of the total drainage basin of Lambert Glacier. These show a small but significant positive state of balance for the interior basin (the accumulation area up-stream of the major ice streams), and strongly suggest a positive balance for the Lambert Glacier system (the region of major ice streams, between the Amery Ice Shelf and the interior basin). The total mass flux into the interior basin is estimated as 60 Gt a. Results are presented from a number of ice movement stations established between 1972 and 1974 around the perimeter of the southern Prince Charles Mountains. These results, together with ice thicknesses from radio-echo-sounding in the area, give a total mass outflux through the 2,000 m contour of 30 Gt a, implying a budget excess of a further 30 Gt a over the whole interior basin. Results from velocity and ice thickness measurements give a mass discharge through a section near the junction of Lambert Glacier and the Amery Ice Shelf of 11 Gt a. Losses within the Lambert Glacier system proper account for a further 7 Gt a and an overall mass excess of 12 Gt a is estimated for the Lambert Glacier system. This present positive state of balance contrasts with geomorphological evidence from the southern Prince Charles Mountains of a large drop in ice level in recent geological time, and the ice surface in the area may now be building up after a major recession. (Auth.)

### 34-539

**In-situ measurements of the activation energy for D.C. conduction in polar ice.**

Bentley, C.R., *Journal of glaciology*, 1979, 22(87), p.237-246, 14 refs.

**Ice electrical properties, Ice shelves, Electrical resistivity, Ice models, Antarctica—Ross Ice Shelf.**

Electrical resistivity measurements were carried out at Station 39 on the Ross Ice Shelf where temperature measurements were available to a depth exceeding three-quarters of the thickness of the shelf. As in a previously published study at a point about 30 km up-stream (Bentley, 1977), the apparent resistivities fit well to a model based upon a steady-state ice shelf with zero bottom balance-rate and an apparent activation energy in the solid ice of 0.15 to 0.25 eV, with preference for the lower end of the range. This model also fits the observed temperature data almost perfectly. Causes of resistivity variation with depth other than the temperature, such as impurity content, metamorphic history, grain size, and crystal orientation, probably do not strongly affect the resistivity depth function. It is concluded that the true activation energy in the solid ice is less than 0.25 eV and perhaps as small as 0.15 eV, although a reduction by a factor of two or three in the ionic impurity concentration between 50 and 250 m depth cannot be entirely ruled out as a cause of the low apparent temperature effect. A note added in proof indicates that Heiron and Conway (in press) have, in fact, reported a decrease in Na<sup>+</sup> concentration with increasing depth by a factor of two or three. (Auth.)

### 34-540

**Rhombus and rhomboid parallelogram patterns on glaciers: natural indicators of strain.**

Waag, C.J., et al. *Journal of glaciology*, 1979, 22(87), p.247-261, 11 refs.

**Echelmeyer, K. Glacier ice, Firn, Strains, Stresses, Recrystallization.**

### 34-541

**On the computation of heat transfer coefficients from energy-balance gradients on a glacier.**

Kuhn, M., *Journal of glaciology*, 1979, 22(87), p.263-271, 29 refs.

**Glacier surfaces, Heat transfer, Glacial meteorology.**

### 34-542

**Supraglacial debris of G2 glacier in Hidden Valley, Mukut Himal, Nepal.**

Nakawo, M., *Journal of glaciology*, 1979, 22(87), p.273-283, 26 refs.

**Glacier flow, Particles, Particle size distribution, Glacier ice.**

### 34-543

**Is vertical shear in an ice shelf negligible.**

Sanderson, T.J.O., et al. *Journal of glaciology*, 1979, 22(87), p.285-292, 11 refs.

**Doake, C.S.M. Ice shelves, Shear stress, Glacier tongues, Analysis (mathematics), Antarctica—Amery Ice Shelf.**

Vertical shear stress in ice shelves cannot be precisely zero, since the upper and lower surfaces are generally not parallel. Vertical shear stress is calculated for an unconfined glacier tongue and for a confined bay ice shelf, first, using the assumption of constant temperature and density with depth, and secondly, using realistic data and profiles for Erebus Glacier tongue and for the Amery Ice Shelf. Shear stresses increase almost linearly with depth and are proportional to surface slope. For Erebus Glacier tongue the shear stress is at most 5% of the magnitude of the direct stress deviators and its action through the ice shelf should result in differential movement of 1.8 cm/a between the top and bottom of the ice shelf. For the Amery

Ice Shelf, the shear stress is at most 0.4% of the magnitude of the direct stress deviators and this should lead to differential movement of 2.5 cm/a between the top and bottom of the ice shelf. Shear stresses are therefore generally negligible in comparison with direct stress deviators and can be ignored when considering the overall dynamics of ice shelves. Differential movement is unlikely to be detectable. (Auth.)

### 34-544

**Some results from a linear-viscous model of the Arctic ice cover.**

Hibler, W.D., III, et al. *Journal of glaciology*, 1979, 22(87), MP 1241, p.293-304, 12 refs.

**Tucker, W.B. Ice physics, Drift stations, Ice models, Sea ice, Viscosity, Ocean currents, Stresses.**

### 34-545

**Effects of ice thickness on the exchange of solar radiation over the polar oceans.**

Greenell, T.C., *Journal of glaciology*, 1979, 22(87), p.303-320, 20 refs.

**Sea ice, Ice cover thickness, Solar radiation, Colored ice, Albedo, Snow cover.**

### 34-546

**In-situ estimates of the tensile strength of snow utilizing large sample sizes.**

McClung, D.M., *Journal of glaciology*, 1979, 22(87), p.321-329, 13 refs.

**Tensile properties, Snow strength, Fracturing.**

### 34-547

**Reconstructed Pleistocene ice-sheet temperatures and glacial erosion in northern Scotland.**

Gordon, J.E., *Journal of glaciology*, 1979, 22(87), p.331-344, 51 refs.

**Ice sheets, Ice temperature, Glacial erosion, Pleistocene, Ice models, Ice scoring.**

### 34-548

**Forms at the base of till strata as indicators of ice movements.**

Fhlers, J., et al. *Journal of glaciology*, 1979, 22(87), p.345-355, 8 refs.

**Stephan, H.-J. Glacier flow, Striations, Glacial deposits, Geomorphology.**

### 34-549

**Composition, internal structures, and an hypothesis of formation for drumlins, Waukesha County, Wisconsin, U.S.A.**

Whittemar, G.R., et al. *Journal of glaciology*, 1979, 22(87), p.357-371, 32 refs.

**Mickelson, D.M. Glacial erosion.**

### 34-550

**Mechanics of drumlin formation with particular reference to the change in pore-water content of the till.**

Menzies, J., *Journal of glaciology*, 1979, 22(87), p.373-384, 52 refs.

**Glacial deposits, Rheology, Glacial hydrology, Geomorphology.**

### 34-551

**Mercury-in-glass thermometers for precise temperature measurements near 0 degrees C.**

Osterkamp, T.E., *Journal of glaciology*, 1979, 22(87), p.385-388, 3 refs.

**Temperature measurement.**

### 34-552

**System for accurate temperature control of small fluid baths.**

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Six test roofs of two different slopes—16.3 deg and 39.8 deg, and three different roof coverings—asphalt shingles, cedar shingles, and corrugated aluminum sheeting, were constructed at USACRREL, Hanover, New Hampshire, and were instrumented with thermocouples, heat flow meters, and calibrated gutters. Measurements were recorded for the winters of 1971-72 and 1972-73. The degree of icing and the chronological changes in the snow cover were recorded on 35-mm Kodachrome slides. It was found that eave icing is a sensitive function of the slope, roof covering composition, and solar radiation. The effects of wind were not investigated, the data were screened to remove all information corresponding to wind speeds over 8 km/h. In order of increasing tendency to form ice dams on the eaves, the roofs were high-slope asphalt, high-slope cedar, high-slope aluminum, low-slope asphalt, low-slope cedar, and low-slope aluminum.
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Bullet penetration in snow. Cole, D.M., et al. *U.S. Army Cold Regions Research and Engineering Laboratory*, July 1979, SR 79-25, 23p., ADA-074 412, 14 refs.
- 34-640**  
Farrell, D.R.  
Snow (construction material), Projectile penetration, Penetration tests.
- 34-641**  
Three types of ammunition, the M193, M80, and M43, were tested. Rounds were fired into snow targets of various thicknesses up to that thickness required to fully stop the projectiles. The maximum penetrations for the three rounds tested were 0.70 m, 1.26 m and 1.06 m, respectively. Velocity loss as a function of target thickness was determined by measuring projectile velocity before and after impact of the projectile with the target. The velocity loss vs. thickness data showed a sigmoid shape common to the three types of rounds. The impact and exit yaw angles of the M193 rounds were estimated. Scatter in the test data was attributed, in part, to random variations in the impact yaw angle. The penetration required for a 90 deg yaw was determined by the exit yaw measurements. This was shown to correspond to the inflection point on the velocity loss vs. penetration curve. This point is potentially significant in the design of composite fortifications. Discussions deal with basic concepts and definitions, the occurrence and significance of projectile tumbling and the use of laboratory tests for small arms evaluation in snow targets. The validity of the methodology used was established by testing M193 rounds in gelatin targets. These results compared favorably with similar test results in literature.
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- 34-645**  
Zarling, J.P.  
Heating, Solar radiation, Water, United States—Alaska.
- 34-646**  
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- 34-647**  
Soil mechanics, Soil creep, Plastic deformation, Soil strength, Models, Analysis (mathematics). The book from which the three chapters in this translation are taken investigates principles of rheology in soil mechanics and bases its scientific principle on the relation of pressure change and volume, densification, and such properties of soil as internal friction, cohesion, and changes in structure and texture. Chapter 5 investigates forms of creep, deformation, residual deformation and the relation of stress, strain and time. The general forms of the creep flow equations are treated considering time and rate variables. Experimental data are presented. Chapter 7 investigates the mechanistic models of linear elastic-plastic concepts of ground deformation, arriving at a series of complicated concepts explaining shear creep. The chapter ends with theoretical fundamentals of flow and creep based on molecular-kinetic and thermoactive processes. Chapter 9 leads to field and laboratory strength tests of soil. Investigated are the conditions of load application and its influence upon test results. The important long-term strength equations are derived in detail. The chapter gives many concepts of strength variables, conditions and states which are immediately applicable in practice.
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Tilsworth, T., ed.  
Meetings, Standards, Laboratories, Water treatment, Environments, Waste disposal, Water chemistry, Economic development, Sanitary engineering.
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Snow vehicles.
- Snowmobiles are the main form of land transportation for field parties in Antarctica. Recently the United States Antarctic program turned almost exclusively to Ski-Doo Alpine 640-ER snowmobiles, the use and maintenance of which requires specialized techniques. The first extensive Antarctic field test of these snowmobiles was made during three months of 1977-1978 while engaged in reconnaissance geologic and topographic exploration of the Orville Coast area. Findings of the tests are reported.
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- 34-691**  
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- 34-693**  
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- 34-696**  
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- 34-723**  
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Lake ice, Ice density, Measuring instruments.
- 34-724**  
Artificial tritium fall-out at the South Pole. Jouzel, J., et al. Behaviour of tritium in the environment, International Atomic Energy Agency, IAEA-SM-232/38, Vienna, Austria, 1979, p.31-46, 24 refs.  
Pourchet, M., Lorius, C., Merlivat, L.  
Radioactive isotopes, Isotope analysis, Fallout, Precipitation (meteorology), Antarctica—Amundsen-Scott Station.  
Snow samples were taken from a 5-m-deep pit located near Amundsen-Scott Station in Jan. 1975, and continuous deuterium, tritium and beta activity profiles have been obtained from them. These three measurements and the stratigraphic level observation allow a precise chronology of the pit from 1950 to 1975 to be deduced, providing a continuous record of artificial tritium fall-out in the Southern hemisphere. This has been extended to 1978 using samples from a second pit taken

in 1978. The beta and tritium peaks occur during the Antarctic summer and the Antarctic winter respectively, showing different injection mechanisms. The winter input and the high tritium values registered at the Amundsen-Scott Station indicate a preferential tritium transfer over the polar region. Two mechanisms, stratospheric-tropospheric exchange and direct stratospheric cloud precipitation, could account for this injection. (Auth.)

#### 34-725

**Economic analysis of an Arctic icebreaking tanker transportation system: nuclear vs. fossil.**  
Porter, T.J., University Park, Pennsylvania State University, Nov. 1977, 102p., M.S. thesis. 28 refs.  
**Ice breaking, Economic analysis, Tanker ships, Petroleum transportation, Environmental impact.**

#### 34-726

**U.S. Geological Survey in Alaska; 1979 programs.**  
Reed, K.M., ed., U.S. Geological Survey. Circular, 1979, No.804-A, 94p.  
**Geological surveys, Topographic surveys, Water reserves, Mapping, United States—Alaska.**

#### 34-727

**Average spring, summer, fall and winter iceberg density distribution along the Labrador Coast.**  
Gustafis, K.A., et al., St. John's, Memorial University of Newfoundland, C-CORE, 1977, 4 maps.  
Buckley, T.J.  
**Icebergs, Sea ice distribution, Ice conditions, Seasonal variations, Canada—Newfoundland—Labrador Coast.**

#### 34-728

**Reduction of contamination problems in sampling of antarctic snows for trace element analysis.**  
Boutron, C., *Analytica chimica acta*, 1979, Vol.106, p.127-130, 5 refs.  
**Snow composition, Sampling, Snow impurities.**

#### 34-729

**Preconcentration of dilute solutions at the 1/1,000,000 microgram/g level by nonboiling evaporation with variable variance calibration curves.**  
Boutron, C., et al., *Analytical chemistry*, Jan. 1979, Vol.51, p.140-145, 10 refs.  
Martin, S.  
**Snow composition, Chemical composition, Snow impurities, Evaporation.**

A procedure is described for the preconcentration of very dilute solutions at the 1/1,000,000 microgram/g level by nonboiling evaporation in Teflon bulbs in the presence of hydrofluoric and nitric acids under clean room conditions. By processing various synthetic standards, calibration curves are determined by variable variance statistical techniques for Na, Mg, K, Ca, Fe, Al, Mn, Pb, Cd, Cu, Zn, and Ag. The results of the analysis by this procedure of a typical snow sample collected at South Pole Station show that for most of the elements the precision is in the order of 10%. (Auth. mod.)

#### 34-730

**Determination of the stratospheric residence time from the total beta activity of antarctic and Greenland snows.**  
Pourchet, M., et al., *Geophysical research letters*, May 1979, 6(5), p.365-367, 9 refs.  
Pinglot, F.  
**Snow impurities, Radioactivity, Fallout, Stratosphere.**

The beta-activity in polar snow reflects the combined effects of fallout from and radioactive decay in the stratospheric reservoir of nuclear debris, which has become virtually uniform since the last bomb tests in 1965. This makes it possible to estimate the stratospheric residence time from the decrease in the beta-activity of snow with age (depth). The residence times thus determined for Antarctica and Greenland average 1.63 years and are in good agreement with published estimates from atmospheric measurements. (Auth.)

#### 34-731

**Alkali and alkaline earth enrichments in aerosols deposited in antarctic snows.**  
Boutron, C., *Atmospheric environment*, 1979, Vol.13, p.919-924, 25 refs.

**Snow composition, Snow impurities, Aerosols.**  
About 175 snow samples collected in various locations both in East and West Antarctica, using stringent contamination free techniques, have been analyzed for Na, Mg, K, Ca and Al by flameless atomic absorption after preconcentration. Multiple linear regression analysis was used to calculate the enrichment factors for K, Ca and Mg in both the oceanic and the crustal components: no significant enrichments are found in antarctic snows, which suggests that the enrichments previously observed by Vosters (1971) and Boutron et al. (1972) could be linked with a contamination of the samples analyzed by these authors. This conclusion can probably be extended to antarctic aerosols, since their composition is very likely similar to that of snow, as shown at the South Pole by comparison between our snow data and unpublished aerosols composition data by Maenhaut, Duce and Zoller. (Auth.)

#### 34-732

**West Antarctic ice sheet: present-day thinning and Holocene retreat of the margins.**  
Thomas, R.H., *Science*, Sep. 21, 1979, 205(4412), p.1257-1258, 20 refs.  
**Ice sheets, Ice shelves, Glacier oscillation, Ice models.**

Retreat of the margins of the West Antarctic ice sheet associated with rising sea level during the last 15,000 years is the main cause for the thinning of the ice sheet by approximately 300 meters. The West Antarctic ice sheet during the late Wisconsin was at least 30 percent wider than it is today, and Holocene retreat of its margins has added about 6 meters to the world sea level. (Auth.)

#### 34-733

**Canadian geothermal data collection—northern wells 1976-77.**  
Taylor, A.E., et al., *Canada. Geothermal Service. Geothermal series*, 1977, No.10, 194p., In English with French summary. 3 refs.  
Judge, A.S.  
**Geothermometry, Permafrost thickness, Canada—Northwest Territories.**

#### 34-734

**Helicopter icing handling qualities.**  
Griffith, W.E., II, et al., New York, American Helicopter Society, 1974, 9p., 13 refs. Presented at the 30th annual national forum of the American Helicopter Society, Washington, D.C., May 1974.  
Brewer, L.K.  
**Helicopters, Aircraft icing, Tests.**

#### 34-735

**Freeze-up forecasting on the Great Lakes using weighted mean temperatures.**  
Rogers, J.C., Ann Arbor, Great Lakes Environmental Research Laboratory, 1975, 16 leaves, Unpublished manuscript. 3 refs.  
**Lake ice, Ice forecasting, Freezeup.**

#### 34-736

**Compositional difference between Arctic aerosol and snow.**  
Rahn, K.A., et al., *Nature*, Aug. 9, 1979, 280(5722), p.479-480, 12 refs.  
McCaffrey, R.J.  
**Aerosols, Snow composition, Air pollution.**

#### 34-737

**20-yr cycle in Greenland ice core records.**  
Hibler, W.D., III, et al., *Nature*, Aug. 9, 1979, 280(5722), MP 1245, p.481-483, 26 refs.  
Johnsen, S.J.  
**Ice cores, Drill core analysis, Isotope analysis, Periodic variations.**

Oxygen isotope analysis of Greenland ice cores is made and the methods of analysis are described. Cyclic variations of about 20 yr seem to coincide with climatic oscillations and the Sun's motion about the center of mass of the Solar System. These periodic variations are compared with the oxygen isotope record in the ice cores.

#### 34-738

**Mars: the wet look.**  
Eberhart, J., *Science news*, Aug. 11, 1979, 116(6), p.108-110.  
**Mars (planet), Water supply, Frost, Permafrost distribution.**

#### 34-739

**Annotated bibliography on northern environmental engineering 1976-1977.**  
Armstrong, B.C., comp., *Canada. Environmental Protection Service. Report*, Jan. 1979, EPS 3-WP-79-1, 132p.  
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**Bibliographies, Utilities, Waste disposal, Water supply, Water treatment, Pipeline insulation, Frost protection.**

#### 34-740

**Tundra lakes as a source of fresh water: Kipnuk, Alaska.**  
Bredthauer, S.R., et al., *U.S. Army Cold Regions Research and Engineering Laboratory*, Sep. 1979, SR 79-30, 16p., ADA-075 475, 12 refs.  
Doerflinger, D.F.  
**Lake water, Tundra, Snowmelt, Water supply, Arctic regions.**

A study of water quality in several small tundra lakes near Kipnuk, Alaska, was conducted to determine if the lakes were of sufficiently high quality during the snowmelt season to provide the village with enough water for a year-round supply. Since the village is located just 4 miles inland from the Bering Sea, primary emphasis was placed on locating water sources with low chloride concentrations. The tundra lakes were of sufficiently high quality to be pumped into a storage area during early summer to be used as a year round supply.

#### 34-741

**Dynamic thermodynamic sea ice model.**  
Hibler, W.D., III, *Journal of physical oceanography*, July 1979, 9(4), MP 1247, p.815-846, 51 refs.  
**Sea ice, Thermodynamics, Heat transfer, Ice cover thickness, Mathematical models.**

A numerical model for the simulation of sea ice circulation and thickness over a seasonal cycle is presented. This model is used to investigate the effects of ice dynamics on arctic ice thickness and air-sea heat flux characteristics by carrying out several numerical simulations over the entire Arctic Ocean region. The essential idea in the model is to couple the dynamics to the ice thickness characteristics by allowing the ice interaction to become stronger as the ice becomes thicker and/or contains a lower areal percentage of thin ice. The dynamics, in turn, causes high oceanic heat losses in regions of ice divergence and reduced heat losses in regions of convergence. To model these effects consistently, the ice is considered to interact in a plastic manner with the plastic strength chosen to depend on the ice thickness and concentration. The thickness and concentration, in turn, evolve according to continuity equations which include changes in ice mass and percent of open water due to advection, ice deformation and thermodynamic effects.

#### 34-742

**Insulating and load-supporting properties of sulfur foam for expedient roads in cold regions.**  
Smith, N., et al., *U.S. Army Cold Regions Research and Engineering Laboratory*, Sep. 1979, CR 79-18, 21p., ADA-074 694, 6 refs.  
Pazsint, D.A.  
**Roads, Thermal insulation, Cellular materials, Bearing strength, Freeze thaw cycles.**

Temperatures of the subgrade and of sulfur foam insulation test sections in an expedient road were monitored with thermocouples to document freezing and thawing conditions. Vehicular trafficking was conducted on a limited basis to determine the load supporting capabilities of the foam. The sulfur foam, placed directly under a prefabricated surface mat, was found to be unsuitable for use as an expedient thermal insulation and traffic load supporting material, primarily because of its low tensile strength and high brittleness. The insulating value of sulfur foam produced by the batch process in the field was about one-half that of extruded polystyrene, meaning double the thickness for equal protection against thaw.

#### 34-743

**Documentation of soil characteristics and climatology during five years of wastewater application to CRREL test cells.**  
Iskandar, I.K., et al., *U.S. Army Cold Regions Research and Engineering Laboratory*, July 1979, SR 79-23, 82p., ADA-074 712, 14 refs.  
Quarry, S.T., Bates, R.E., Ingersoll, J.  
**Waste disposal, Water treatment, Soil chemistry, Climatology, Meteorological data.**

Section 1 deals with physical properties of the two soils used and the changes in soil chemical characteristics. The physical properties of the soil are those most important in controlling the rate of water movement in soils, such as saturated and unsaturated soil hydraulic conductivity, particle size distribution, bulk density, void ratio, available water and specific gravity. The chemical characteristics of the soil that are of potential importance in assessing the short and long-term effects of wastewater application on land include: free iron oxides, organic carbon, organic nitrogen, pH, conductivity, cation exchange capacity, exchangeable cations, total and extractable phosphorus, and total and extractable heavy metals. Section 2 summarizes climatic conditions at the CRREL site in Hanover, New Hampshire, and the changes that occurred during the period 1974 to 1978. Climatic parameters include temperature, precipitation, wind speed, and soil temperature at depth.

#### 34-744

**Determination of dissolved nitrogen and oxygen in water by headspace gas chromatography.**  
Leggett, D.C., *U.S. Army Cold Regions Research and Engineering Laboratory*, July 1979, SR 79-24, 5p., ADA-074 411, 25 refs.

**Lake water, Water chemistry.**  
In this study dissolved oxygen and nitrogen were determined by shaking 20 to 25 ml of water with an equal amount of helium in a 50-ml gas-tight syringe and injecting 2 ml of the equilibrated headspace into a gas chromatograph. Oxygen and nitrogen were separated on a 5-A molecular sieve column at ambient temperature and detected with a hot wire detector, using atmospheric air for calibration. Advantages of this method over previously reported methods are 1) oxygen and nitrogen are determined in a single analysis, 2) no specifically fabricated stripping apparatus is needed, and 3) analysis can be done in the field with completely portable, battery-operated equipment. The method appears to be accurate and reproducible; several lake O<sub>2</sub> and N<sub>2</sub> profiles were obtained using this technique.

#### 34-745

**Extending the useful life of DYE-2 to 1986, Part 1: Preliminary findings and recommendations.**  
Tobiasson, W., et al., *U.S. Army Cold Regions Research and Engineering Laboratory*, July 1979, SR 79-27, 15p., ADA-074 733, 3 refs.  
Korhonen, C., Redfield, R.  
**Cold weather construction, Ice sheets, Steel structures, Stresses.**

DEW Line Ice Cap Station DYE-2 appears to need major work within the next few years to extend its useful life to 1986. The

structural steel frame is overstressed in a few areas, and the lower portion of the subsurface timber truss enclosure is in bad condition. Additional performance measurements are needed during 1979 to determine the rate of secondary stress in the structural steel frame and the rate of deterioration of the truss enclosure. With this information, a decision can be made whether to move the building sideways onto a new undistorted foundation or to stabilize it in-place by encapsulating the lower 52 ft of the substructure in ice.

#### 34-746 Utilization of sewage sludge for terrain stabilization in cold regions, Part 2.

Gaskin, D.A., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, Aug. 1979, SR 79-28, 36p., ADA-074 725, 10 refs. For Part 1 see 32-1368. Palazzo, A.J., Rindge, S.D., Bates, R.E., Stanley, L.E. **Sludges, Sewage disposal, Soil stabilization, Vegetation.**

From June 1975 to Sep. 1976, a research/demonstration study was conducted at CRREL in Hanover, New Hampshire, to investigate the use of sewage sludge, commercial fertilizer and cultivation techniques for terrain stabilization in cold regions. Twenty-seven test plots on a 16-deg west-facing slope received various combinations of: 1) surface preparation (tilling, bulldozer tracking, or compacting); 2) nutrient source (sewage sludge or fertilizer); 3) mulching agent (wood fiber mulch or peat moss); and 4) tacking agent (Terra Tack III or Curosol). The plots were seeded in either the spring or fall with a constant seed mixture. The effectiveness of the treatments was determined through vegetation yields and soil loss measurements.

#### 34-747 Phenomenological description of the acoustic emission response in several polycrystalline materials.

St. Lawrence, W., *Journal of testing and evaluation*, July 1979, 7(4), MP 1246, p.223-228, 11 refs.

#### 34-748 Snow deformation, Snow cover structure, Snow acoustics, Acoustic measurement, Models.

The pattern of acoustic emission response in snow subjected to constant deformation rates is examined. The structural character of snow is discussed, and an equation that describes the pattern of the acoustic emission response is derived. Comparison between the predicted acoustic response and experimental data is made and the agreement is shown to be excellent. The acoustic emission response for 7075-T6 aluminum and iron-3% silicon subjected to constant rates of deformation is also considered. The acoustic emission equation derived for snow represents the response in these materials. It is suggested that the internal fracture concept used to develop the model for snow may also apply to other densely packed polycrystalline materials.

#### 34-748 Probabilities of blowouts in Canadian Arctic waters.

Bercha (F.G.) and Associates, Ltd., *Canada. Environmental Protection Service. Report*, Oct. 1978, EPS 3-EC-78-12, 139p., In English with French summary. 73 refs.

#### 34-749 Offshore drilling, Statistical analysis, Oil spills.

**Dielectric properties of polymer materials in different climatic conditions.** (Dielektricheskie svoystva polimernykh materialov v razlichnykh klimaticheskikh usloviakh). Filatov, I.S., Novosibirsk, Nauka, 1979, 129p., In Russian with English table of contents enclosed. 60 refs. **Construction materials, Plastics, Polymers, Dielectric properties, Freeze thaw cycles, Cold weather performance.**

#### 34-750 Water supply and sewage in areas of permafrost and severe climate.

(Nekotorye problemy vodoprovodnosti i kanalizatsii v raionakh vechnoy merzloty i surovogo klimata). Stegantsev, V.P., *Stroitel'stvo v raionakh Vostochnoi Sibiri i Kraïnego Severa*, 1974, Vol.32, p.3-13, In Russian. 4 refs.

#### 34-751 Pipelines, Water supply, Sewage disposal, Permafrost beneath structures, Permafrost hydrology.

#### 34-751 Intensifying the performance of incomplete dug-out wells.

(Predlozheniia po intensifikatsii raboty nesovershennykh shakhtnykh kolodtsev). Iakunin, I.U.V., *Stroitel'stvo v raionakh Vostochnoi Sibiri i Kraïnego Severa*, 1974, Vol.32, 14-22, In Russian. 4 refs.

#### 34-752 Water supply, Water pipelines, Wells, Permafrost, Water intakes.

**Performance of seepage tanks with trapezoidal cross sections and impervious slopes.** (Rabota infiltratsionnogo basseina trapetsoidal'nogo secheniia s neproniцаemymi otkosami). Bogoliubov, K.S., et al, *Stroitel'stvo v raionakh Vostochnoi Sibiri i Kraïnego Severa*, 1974, Vol.32, p.23-28, In Russian. 4 refs.

#### 34-753 Braga, P.A. Water supply, Lakes, Tanks (containers), Seepage, Concrete structures, Design.

**Studying river bed alluvium for designing seepage water intakes.** (Izuchenie rechnykh alluvial'nykh otlozhenii primenitel'no k ustroistvu infiltratsionnykh vodozaborov). Poradin, A.F., *Stroitel'stvo v raionakh Vostochnoi Sibiri i Kraïnego Severa*, 1974, Vol.32, p.29-51, In Russian. 18 refs.

#### 34-754 Water supply, Rivers, Water intakes, Alluvium, Permafrost beneath rivers.

**Calculating water inflow into incomplete dug-out wells allowing for riverbed silting.** (Raschet pritoka vody v nesovershenno shakhtnye kolodtsy s uchedom zaileniia rusla reki). Iakunin, I.U.V., *Stroitel'stvo v raionakh Vostochnoi Sibiri i Kraïnego Severa*, 1974, Vol.32, p.82-81, In Russian. 27 refs.

#### 34-755 Water supply, Wells, Rivers, Water intakes, Silting, Permafrost beneath rivers.

**Graphic calculation of dug-out vacuum wells.** (Graficheskii raschet shakhtnykh vakuum-kolodtsev). Sokolova, L.V., *Stroitel'stvo v raionakh Vostochnoi Sibiri i Kraïnego Severa*, 1974, Vol.32, p.82-88, In Russian. 6 refs.

#### 34-756 Water supply, Wells, Water flow, Permafrost.

**Combined portable fluid-level warning device.** (Kombinirovannyi perenosnyi signalizator urovnia zhidkosti). Zhukov, B.P., et al, *Stroitel'stvo v raionakh Vostochnoi Sibiri i Kraïnego Severa*, 1974, Vol.32, p.89-93, In Russian. 1 ref.

#### 34-757 Nazarenko, A.S. Pumps, Water supply, Water level, Warning systems, Pipelines, Water intakes.

**Transfer of heat from a surface source along pipe walls.** (Teplotperedacha po stenke trub pri deistvii poverkhnostnogo teploistochnika). Kardymov, V.F., *Stroitel'stvo v raionakh Vostochnoi Sibiri i Kraïnego Severa*, 1974, Vol.32, p.94-106, In Russian. 4 refs.

#### 34-758 Water supply, Pipeline freezing, Water pipelines, Electric heating, Heat transfer, Heating cables.

**Thermal regime of water pipelines built in seasonally freezing ground.** (Teplovoi rezhim vodoprovodnykh setei, ulozhennykh v sloe sezonnogo promerzaniia grunta). Pereleshin, R.S., et al, *Stroitel'stvo v raionakh Vostochnoi Sibiri i Kraïnego Severa*, 1974, Vol.32, p.107-210, In Russian.

#### 34-759 Semenov, L.P. Water pipelines, Permafrost beneath structures, Active layer, Ground thawing, Pipeline freezing, Thermal regime, Soil temperature.

**Field studies of temperature regime of water pipelines in deep seasonally freezing ground.** (Naturanoe issledovaniia temperaturnogo rezhima vodovodov, ulozhennykh v sloe glubokogo sezonnogo promerzaniia grunta). Pereleshin, R.S., et al, *Stroitel'stvo v raionakh Vostochnoi Sibiri i Kraïnego Severa*, 1974, Vol.32, p.121-126, In Russian.

#### 34-760 Semenov, L.P. Water pipelines, Thermal regime, Seasonal freeze thaw, Pipeline freezing, Soil temperature.

**Improving natural ventilation of underground utility ducts under permafrost conditions.** (Sposoby uluchsheniia ventilatsii s estestvennym pobuzhdeniem podzemnykh kommunikatsionnykh kanalov v usloviakh vechnomerzlykh gruntov). Ivontsev, V.V., *Stroitel'stvo v raionakh Vostochnoi Sibiri i Kraïnego Severa*, 1974, Vol.32, p.127-136, In Russian. 1 ref.

#### 34-761 Utilities, Ducts, Ventilation, Permafrost beneath structures, Foundations, Permafrost control.

#### 34-762 Experimental study of anchor support performance.

(Eksperimental'nye issledovaniia raboty ankernoi opory). Danilova, N.P., *Stroitel'stvo v raionakh Vostochnoi Sibiri i Kraïnego Severa*, 1974, Vol.32, p.137-147, In Russian. 2 refs.

#### 34-763 Pipelines, Permafrost beneath structures, Pipeline supports, Anchors.

**Use of nonmetallic pipelines in construction.** (Primenenie nemetallicheskiikh truboprovodov v stroitel'stve). Borshcheva, N.I., et al, *Stroitel'stvo v raionakh Vostochnoi Sibiri i Kraïnego Severa*, 1974, Vol.32, p.148-151, In Russian.

#### 34-764 Cements, Pipelines, Reinforced concretes, Construction materials, Plastics, Concretes, Permafrost beneath structures, Asbestos.

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#### 34-765 Bubentsov, V.N., Emelina, Z.G. Industrial buildings, Water supply, Sewage, Environmental protection, Water pollution, Water treatment.

**Filter purification of waste waters from tire factories.** (Ochistka proizvodstvennykh vod shinnogo zavoda metodom fil'trovaniia). Emelina, Z.G., et al, *Stroitel'stvo v raionakh Vostochnoi Sibiri i Kraïnego Severa*, 1974, Vol.32, p.159-169, In Russian. 4 refs.

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#### 34-767 Stepanov, V.A., Suroiakov, I.M. Sanitary engineering, Permafrost beneath structures, Sewage treatment, Sewage disposal, Water treatment.

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#### 34-791 Meetings, Mining, Water quality.

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- 34-772**  
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Orheim, O., *National Aeronautics and Space Administration. Contractor report*, June 1977, NASA-CR-155210, 17p., N78-10532, 4 refs.  
Sea ice distribution, Remote sensing, Icebergs, Mapping, Spaceborne photography, Ice floes, Antarctica—Queen Maud Land.  
The author has identified the following significant results. A nearly complete map of the Dronning Maud Land coastline from 10W to 29E was produced. Based on this, it was determined that for the past 20 years the minimum calving rate from this part of the coastline was 60 cu km/year. The drift speeds were measured for ice floes and bergs between 9 and 20 km/day, and it was found that the number of ice floes of a given size decreases exponentially with size, so that each size class covers approximately the same area. A large melt phenomenon at blue ice fields around 70.7S and 26-29E was discovered.
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- 34-780**  
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Floating ice, Dynamic loads, Velocity.  
The critical velocities of loads moving over floating ice plates have been determined by several authors. In all these analyses



it was assumed that the in-plane force field in the ice cover is zero. However, due to constrained thermal strains, in-plane forces do occur in the field. The purpose of the present paper is to determine their effect upon the critical velocities of the moving loads. It is shown that a uniform compression force field reduces the critical velocity, whereas a tension force has the opposite effect.

34-803

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All terrain vehicles, Air cushion vehicles.

34-804

**Ice cover parametrization in global models of ocean-atmosphere interactions.** (O parametrizatsii ledianogo pokrova v global'nykh modeliyakh vzaimodelstvii okeana i atmosfery).

Belevich, M.IU., *Meteorologiya i gidrologiya*, July 1979, No. 7, p. 91-97, In Russian with English summary. 2 refs.

**Sea ice, Mathematical models, Ice cover thickness, Ice surface, Surface temperature, Snow cover effect.**

34-805

**Regularities governing properties of mortars.** (O nekotorykh zakonomernostyakh v svoystvakh stroitel'nykh rastvorov).

Ryb'ev, I.A., et al, *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniya. Izvestiya vysshikh uchebnykh zavedeniy. Stroitel'stvo i arkhitektura*, 1979, No. 4, p. 64-67, In Russian. 5 refs. Nikulin, V.T.

**Mortars, Cements, Cement admixtures, Frost resistance, Seasonal freeze thaw.**

34-806

**Using frozen ground in earth dam construction.** (O primeneni merzlykh gruntov dlia vozvedeniia plotiny). Kuznetsov, G.I., et al, *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniya. Izvestiya vysshikh uchebnykh zavedeniy. Stroitel'stvo i arkhitektura*, 1979, No. 4, p. 92-96, In Russian. 8 refs. Baliasnikov, G.G.

**Hydraulic structures, Earth dams, Frozen fines, Permafrost beneath structures.**

34-807

**Concepts and variables in the thermal stability theory of building walls.** (O poniatyakh i velichinakh teorii teplostoiichivosti ogradzhdaiushchikh konstruktov zdaniy).

Nasedkin, V.V., *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniya. Izvestiya vysshikh uchebnykh zavedeniy. Stroitel'stvo i arkhitektura*, 1979, No. 4, p. 101-106, In Russian. 13 refs. Walls, Thermal conductivity, Theories, Buildings.

34-808

**Kinetics of cement hardening during thermal treatment of concrete bases of road pavements in freezing weather.** (Kinetika tverdeniya tsementnogo kamnia pri teplovoi obrabotke betonnykh osnovaniia dorozhnykh odezhd v zimnikh usloviakh).

Shkurenko, V.I., et al, *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniya. Izvestiya vysshikh uchebnykh zavedeniy. Stroitel'stvo i arkhitektura*, 1979, No. 4, p. 113-117, In Russian. 7 refs. Anchikov, V.F.

**Pavements, Bitumens, Foundations, Concretes, Winter concreting, Roads.**

34-809

**Studying correlation functions of frozen ground cutting stresses.** (Issledovanie korrelyatsionnykh funktsii sil rezaniia merzlogo grunta).

Solomonov, S.A., *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniya. Izvestiya vysshikh uchebnykh zavedeniy. Stroitel'stvo i arkhitektura*, 1979, No. 4, p. 122-127, In Russian. 4 refs. Earthwork, Cutting tools, Design, Frozen ground.

34-810

**Testing welded pipe joints at low temperatures.** (Ispytaniia svarnykh uzlov struktur iz trub pri nizkikh temperaturakh).

Sil'vestrov, A.V., et al, *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniya. Izvestiya vysshikh uchebnykh zavedeniy. Stroitel'stvo i arkhitektura*, 1979, No. 4, p. 133-136, In Russian. 2 refs. Semenov, M.D., Erokhin, K.A.

**Pipes (tubes), Joints (junctions), Welding, Low temperature tests.**

34-811

**Effect of cryogenic processes on the formation of gold-scattering water flows.** (Vliianie kriogennykh protsessov na formirovaniye vodnykh potokov rasscianiia zolotaj).

Pliusnin, A.M., et al, *Akademiia nauk SSSR. Doklady*, 1979, 247(3), p. 700-703, In Russian. 8 refs. Pogrebnik, I.U.F., Tat'iankina, E.M.

**Mining, Gold, Solutions, Freeze thaw cycles, Meltwater, Phase transformations, Water chemistry, Isotope analysis.**

34-812

**Railway track switch that operates in snow and ice.** Coveney, D.B., *National Research Council, Canada. Division of Mechanical Engineers and the National Aeronautic Establishment. Quarterly bulletin*, July 1979, No. 2, p. 25-73, 6 refs.

**Railroad equipment, Cold weather operation, Snow accumulation, Ice accretion, Railroad switches.**

34-813

**Program and abstracts.**

International Polar Meeting, 11th, Berlin, Oct. 4-7, 1978, Berlin, Deutsche Gesellschaft für Polarforschung, 1978, c50p., In German and English. Refs. passim.

**Glaciology, Marine biology, Geomorphology, Climate, Tundra, Meetings.**

The work program of the 11th International Polar Meeting marking the 150th anniversary of the Berlin Geographical Society, consisted of studies of the Arctic and Antarctic. This volume of abstracts of papers presented at the meeting includes the following topics: glaciology, marine biology (special attention to krill), geomorphology, climatology and tundra ecosystem. Scientists from the U.S., Argentina, Germany, Austria and Canada participated.

34-814

**Proceedings.**

Symposium on Meteorological Observations from Space: Their Contribution to the First GARP Global Experiment, Philadelphia, June 8-10, 1976, Boulder, Colo., National Center for Atmospheric Research, Sep. 1976, 424p., Refs. For selected articles see 34-815 through 34-821, or F-22387 through F-22389 and I-22390.

**Sea ice, Snow cover, Climate, Spaceborne photography, Ice cover.**

The symposium, the proceedings of which are presented in this volume, was held to review the status of the global observing system coming into being to support the First GARP Global Experiment. The papers and abstracts are assembled in six sessions. The list of topics of the various sessions represent those special kinds of space-based observations that are needed to complement ground-based observations in order to meet the observational requirements for the First GARP Global Experiment. The topics of the sessions are: Temperature and humidity fields derived from satellite observations; Surface characteristics of importance to weather and climate; Wind determination from geostationary satellites; Role of the earth's radiation budget in atmospheric dynamics; Data collection systems and some programmatic developments; and Application of satellite data to numerical analysis and prediction.

34-815

**Characteristics of antarctic sea ice as determined by satellite-borne microwave imagers.**

Zwally, H.J., et al, Symposium on Meteorological Observations from Space: Their Contribution to the First GARP Global Experiment, Philadelphia, June 8-10, 1976, Proceedings, Boulder, Colo., National Center for Atmospheric Research, Sep. 1976, p. 94-97, 7 refs.

**Wilheit, T.T., Gloersen, P., Mueller, J.L. Sea ice distribution, Polynyas, Ocean currents, Wind factors.**

Features of the antarctic sea ice, such as detailed variations in ice extent and areas of ice divergence induced by winds or ocean currents, can be discerned in microwave images. Images with resolutions of about 30 km are produced from the Electrically Scanning Microwave Radiometers (ESMR) having wavelengths of 1.55 cm on Nimbus 5 and 0.81 cm on Nimbus 6. For the GARP data system tests, weekly maps of sea ice coverage are generated showing the percent of open water in each cell. More detailed studies of the dynamics and thermodynamics of the sea ice, and its interaction with the ocean and atmosphere, are in progress using 3-day average pseudo-color images and maps of ice boundaries. During the austral winters, polynyas and areas of reduced ice concentration are observed.

34-816

**Satellite observations of snow and ice with an imaging passive microwave spectrometer.**

Fisher, A.D., et al, Symposium on Meteorological Observations from Space: Their Contribution to the First GARP Global Experiment, Philadelphia, June 8-10, 1976, Proceedings, Boulder, Colo., National Center for Atmospheric Research, Sep. 1976, p. 98-103, 8 refs.

**Ledsham, B.L., Rosenkranz, P.W., Staelin, D.H. Sea ice, Snow cover, Brightness, Ice models, Thermal properties, Ice temperature, Snow temperature, Spectroscopy.**

The scanning microwave spectrometer (SCAMS) on the Nimbus-6 satellite continuously maps the terrestrial surface and yields brightness temperatures which are a function of the distribution and character of various types of snow and ice, including microstructure and subsurface profiles in refractive index, loss (moisture, salinity) and temperature. To aid in the interpretation of this data, a model was developed to describe the propagation of microwave intensity in a scattering medium characterized by three-dimensional random fluctuations of refractive index in addition to non-random variations in permittivity, temperature, and loss. The model combines Maxwell's equations in the Born approximation with radiative transfer theory and has been applied to the thermal emission of snow and ice in Antarctica and Greenland.

34-817

**Sea ice modeling: its testing with LANDSAT and potential use in FGGE.**

Hall, R.T., et al, Symposium on Meteorological Observations from Space: Their Contribution to the First GARP Global Experiment, Philadelphia, June 8-10, 1976, Proceedings, Boulder, Colo., National Center for Atmospheric Research, Sep. 1976, p. 104-109, 9 refs.

**Maykut, G.A., Rothrock, D.A. Sea ice, Stresses, Ice models, Ice cover thickness, Heat transfer, Remote sensing, Mass balance, AID-JEX.**

34-818

**Global variation of snow and ice extent.**

Kukla, G.J., Symposium on Meteorological Observations from Space: Their Contribution to the First GARP Global Experiment, Philadelphia, June 8-10, 1976, Proceedings, Boulder, Colo., National Center for Atmospheric Research, Sep. 1976, p. 110-115, 23 refs.

**Snow cover distribution, Sea ice, Ice cover, Charts, Climate.**

Snow in the northern hemisphere formed earlier in the year and covered a substantially larger area on an annual average during 1971-73 than in the rest of the 1967-1975 interval. The differences are largest in autumn and spring. The anomaly was associated with diminished summer ice coverage in the Barents Sea and more snow in Central Asia. Preliminary examination of antarctic ice charts indicates a similar fluctuation apparently in phase with the northern hemisphere (Auth.)

34-819

**Monitoring earth surface characteristics important to weather and climate with earth satellites.**

McClain, E.P., Symposium on Meteorological Observations from Space: Their Contribution to the First GARP Global Experiment, Philadelphia, June 8-10, 1976, Proceedings, Boulder, Colo., National Center for Atmospheric Research, Sep. 1976, p. 129-135, 48 refs.

**Sea ice distribution, Snow cover distribution, Ice cover thickness, Spaceborne photography.**

Many of the observational requirements specified for the First GARP Global Experiment and for the GARP Climate Dynamics Subprogram are variables classified as Earth surface characteristics. Many of these characteristics are such that the required space and time resolutions of the observational data can be met only with the aid of data gathered by Earth satellites. Among the variables in question are sea, ice, and land surface temperature; snow conditions; sea ice conditions; wind stress over the ocean and surface currents; and soil moisture. This paper reviews progress in satellite data applications with respect to the monitoring of these surface characteristics, with emphasis upon the use of operational environmental satellites of the USA. The satellite-documented drift of an antarctic iceberg is illustrated and briefly discussed.

34-820

**Satellite ice surveillance studies in the Arctic in relationship to the general circulation.**

Haupt, L., et al, Symposium on Meteorological Observations from Space: Their Contribution to the First GARP Global Experiment, Philadelphia, June 8-10, 1976, Proceedings, Boulder, Colo., National Center for Atmospheric Research, Sep. 1976, p. 179-187, 4 refs.

**Kant, V. Ice conditions, Sea ice distribution, Atmospheric circulation.**

- 34-821**  
Arctic odyssey—five years of data buoys in AIDJEX. Martin, P., et al. Symposium on Meteorological Observations from Space: Their Contribution to the First GARP Global Experiment, Philadelphia, June 8-10, 1976. Proceedings. Boulder, Colo., National Center for Atmospheric Research, Sep. 1976, p.328-334, 11 refs.  
Gillespie, C.R.  
Sea ice, Drift, Measuring instruments, AIDJEX.
- 34-822**  
Seasonal rhythms in alpine tundra plant communities of the Urals. [Sezonnaia ritmika rastitel'nykh soobshchestv gornykh tundr Urala]. Gorchakovskii, P.L., et al. *Ekologiya*, July-Aug. 1979, No.4, p.16-24, In Russian. 12 refs.  
Bulatova, I.K.  
Plant ecology, Alpine tundra, Ecosystems.
- 34-823**  
Regularities governing altitudinal distribution of steppe plant communities in Alashsk plateau, Tuva Autonomous Region. [Zakonomenosti vysochnogo raspredeleniia stepnykh soobshchestv Alashskogo plato Tuvinskoi ASSR]. Namzalov, B.B., *Ekologiya*, July-Aug. 1979, No.4, p.43-52, In Russian. 10 refs.  
Alpine landscapes.
- 34-824**  
Landscape-ecological basis for forest melioration and biological recultivation of lands along the Tobol'sk-Amudar'ya channel. [K landshaftno-ekologicheskomu obosnovaniyu lesomeliatsii i biologicheskoi rekultivatsii zemel' po trassee kanala Tobol'sk-Amudar'ia]. Chibilev, A.A., *Ekologiya*, July-Aug. 1979, No.4, p.91-93, In Russian.  
Land reclamation, Forestry, Swamps, Taiga.
- 34-825**  
Problems in swamp hydrology. [Voprosy gidrologii bolot]. Novikov, S.M., ed. *Leningrad. Gosudarstvennyi gidrologicheskii institut. Trudy*, 1979, Vol.261, 134p., In Russian. For selected papers see 34-826 through 34-834. Refs. passim.  
Swamps, Microrelief, Geocryology, Permafrost distribution, Permafrost structure, Active layer, Permafrost hydrology, Evaporation, Subsurface drainage, Surface drainage, Thermal analysis.
- 34-826**  
Nature and classification of palsa bogs. [O prirode i klassifikatsii bugristykh bolot]. Novikov, S.M., et al. *Leningrad. Gosudarstvennyi gidrologicheskii institut. Trudy*, 1979, Vol.261, p.3-13, In Russian. 14 refs.  
Usova, L.I.  
Swamps, Microrelief, Geocryology, Hummocks, Permafrost hydrology, Ground ice.
- 34-827**  
Microrelief identification criteria of palsa bogs. [Deshifrovocnyye priznaki bolotnykh mikrolandshaftov bugristykh torfianikov]. Novikov, S.M., et al. *Leningrad. Gosudarstvennyi gidrologicheskii institut. Trudy*, 1979, Vol.261, p.14-26, In Russian. 6 refs.  
Usova, L.I.  
Swamps, Aerial surveys, Photointerpretation, Geobotanical interpretation, Hummocks, Peat, Vegetation patterns.
- 34-828**  
Studying water level regime of palsa bogs. [K voprosu izucheniia urovennogo rezhima vod bugristykh bolot]. Moskvina, I.U.P., *Leningrad. Gosudarstvennyi gidrologicheskii institut. Trudy*, 1979, Vol.261, p.27-37, In Russian. 3 refs.  
Swamps, Microrelief, Hummocks, Ground water, Water table, Permafrost hydrology, Permafrost structure.
- 34-829**  
Calculating water level of palsa bogs from meteorological data. [Metodika rascheta urovnei vody bugristykh bolot po meteorologicheskim dannym]. Novikov, S.M., et al. *Leningrad. Gosudarstvennyi gidrologicheskii institut. Trudy*, 1979, Vol.261, p.38-49, In Russian. 6 refs.  
Kotova, L.V.  
Swamps, Hummocks, Permafrost hydrology, Thermal regime, Water table, Meteorological data.
- 34-830**  
Calculating evaporation from lakes in permafrost areas of the West Siberian Plain. [K raschetu ispareniia s ozer zony mnogoletnei merzloty Zapadno-Sibirskoi ravniny]. Kachalova, T.V., *Leningrad. Gosudarstvennyi gidrologicheskii institut. Trudy*, 1979, Vol.261, p.50-60, In Russian. 3 refs.  
Lakes, Permafrost beneath lakes, Evaporation.
- 34-831**  
Evaporation and runoff from undrained swamps in years with different moisture conditions. [Isparenie i stok s neosushennykh bolot v gody s razlichnoi uvlazhnenosti'yu]. Bavina, L.G., *Leningrad. Gosudarstvennyi gidrologicheskii institut. Trudy*, 1979, Vol.261, p.61-73, In Russian. 13 refs.  
Swamps, Water table, Evaporation, Runoff, Meteorological factors.
- 34-832**  
Heat accumulation and thermal cycles of oligotrophic peat bogs. [Teploakkumulatsiia i teplooborot v torfianoi zalezhi oligotrofnnykh bolotnykh massivov]. Kaliuzhnyi, I.L., *Leningrad. Gosudarstvennyi gidrologicheskii institut. Trudy*, 1979, Vol.261, p.81-89, In Russian. 2 refs.  
Swamps, Biomass.
- 34-833**  
Reliability of experimental determination of basic hydrologic characteristics of swamps. [Metody otsenki nadezhnosti eksperimental'nogo opredeleniia osnovnykh gidrologicheskikh kharakteristik bolot]. Baliasova, E.L., *Leningrad. Gosudarstvennyi gidrologicheskii institut. Trudy*, 1979, Vol.261, p.96-109, In Russian. 4 refs.  
Swamps, Peat, Microrelief, Permafrost hydrology, Active layer, Drainage, Water balance.
- 34-834**  
Determining the volume of measurements for calculating water permeability of active layers in swamps. [Ob opredelenii neobkhodimogo ob'ema izmerenii dlia vychisleniia vodoprovodimosti deiatel'nogo sloia neosushennykh bolot]. Baliasova, E.L., *Leningrad. Gosudarstvennyi gidrologicheskii institut. Trudy*, 1979, Vol.261, p.110-115, In Russian. 7 refs.  
Swamps, Active layer, Peat, Water retention, Permeability.
- 34-835**  
Road maintenance equipment. [Oborudovanie dlia soderzhanii dorog]. Smirenniy, I., et al. *Avtomobil'nye dorogi*, Aug. 1979, No.8, p.32-33, In Russian.  
Volokhonskii, S.  
Roads, Winter maintenance, Snow removal.
- 34-836**  
Road construction in West Siberia. [Stroitel'stvo dorog v Zapadnoi Sibiri]. Cherednikov, I.U.P., *Avtomobil'noe stroitel'stvo*, July 1979, No.7, p.3-5, In Russian.  
Roads, Roadbeds, Permafrost beneath roads, Earthwork, Construction equipment.
- 34-837**  
Reconstruction of the Dnepropetrovsk-Novomoskovsk highway. [Rekonstruktsiia dorogi Dnepropetrovsk-Novomoskovsk]. Grishchenko, N.I., et al. *Avtomobil'nye dorogi*, July 1979, No.7, p.15-16, In Russian.  
Roads, Cold weather construction, Roadbeds, Thermal insulation, Earthwork.
- 34-838**  
Equipment for marking road pavements. [Komplekt oborudovaniia dlia razmetki dorog]. Nisnevich, A.I.A., et al. *Avtomobil'nye dorogi*, July 1979, No.7, p.19-20, In Russian.  
Roads, Plastics, Pavements, Markers.
- 34-839**  
Eliminating seasonal fluctuations in construction. [O likvidatsii sezonnosti v dorozhnom stroitel'stve]. Fedorov, V., *Avtomobil'nye dorogi*, July 1979, No.7, p.31-32, In Russian.  
Meetings, Roads, Cold weather construction, Roads, Embankments, Permafrost beneath roads.
- 34-840**  
Effects on timber cutting and revegetation on snow accumulation and melt in North Idaho. Haupt, H.F., *U.S. Intermountain Forest and Range Experiment Station, Ogden, Utah. USDA Forest Service research paper*, June 1979, INT-224, 14p., 11 refs.  
Snow accumulation, Snowmelt, Forest lines, Revegetation, Slope orientation, Trees (plants), Human factors.
- 34-841**  
Optical properties of young sea ice. Perovich, D.K., *Washington (State) University. Department of Atmospheric Sciences. Scientific report*, Aug. 1979, No.17, 151p., Refs. p.135-140.  
Sea ice, Young ice, Ice optics.
- 34-842**  
Evaluation of automotive engine preheaters as a technique to control cold start carbon monoxide emissions—a final report. Leonard, L.E., et al. College, Alaska, Scarborough and Associates, Sep. 1978, 76p., 12 refs.  
Scarborough, T., Black, H.  
Air pollution, Engines, Heating, Cold weather operation, Motor vehicles, Carbon monoxide, Exhaust gases.
- 34-843**  
Carbon monoxide emissions from moving vehicles in Fairbanks, Alaska. Leonard, L.E., *Alaska. University. Geophysical Institute. Report*, Aug. 1977, UAG R-252, 45p., 10 refs.  
Air pollution, Engines, Cold weather operation, Motor vehicles, Carbon monoxide, Research projects, Exhaust gases, United States—Alaska—Fairbanks.
- 34-844**  
Engineering at the ends of the earth; polar ocean technology for the 1980's. National Research Council. Marine Board. Assembly of Engineering, Washington, D.C., National Academy of Sciences, 1979, 74p., 46 refs.  
Economic development, Sea ice, Icebergs, Research projects, Engineering.  
This report is a review of polar ocean engineering research and technology that are considered necessary to the support of commercial and scientific operations in the Arctic and Antarctic during the 1980's. In presenting the panel's view of the critical national needs in polar ocean engineering, the report identifies and examines the technical deficiencies in today's state of the art and recommends ways of improving the situation. For the Antarctic, major attention is directed toward the technology necessary for harvesting krill and considerations involved in the exploitation of antarctic icebergs.
- 34-845**  
Hydrologic problems of environmental changes in West Siberia. [Gidrologicheskie problemy preobrazovaniia prirody Zapadnoi Sibiri]. Malik, L.K., Moscow, Nauka, 1978, 180p., In Russian with English table of contents enclosed. Refs. p.126-132.  
Swamps, Water pollution, Land reclamation, Environmental protection, Flood control, Human factors engineering, Flood plains.
- 34-846**  
Snow cover in the USSR. [Snezhnyi pokrov na territorii SSSR]. Kopanev, I.D., Leningrad, Gidrometeoizdat, 1978, 181p., In Russian with English table of contents enclosed. 48 refs.  
Snow surveys, Measuring instruments, Snow density, Snow cover distribution, Snow water equivalent, Snow melting, Forest canopy, Snow water content, Meteorological data, Meteorological charts.
- 34-847**  
Water supply and sewage at the Baykal Amur railroad. [Vodosnabzhenie i kanalizatsiia na Baikalo-Amurskoi magistrali]. Fedotov, V.P., Moscow, Transport, 1975, 79p., In Russian with English table of contents enclosed.  
DLC TF290.F4  
Water supply, Water pipelines, Pipeline freezing, Permafrost beneath structures, Sewage disposal, Sewage treatment, Baykal Amur railroad.
- 34-848**  
Vibrating equipment used in mining construction. [Primenenie vibrotekhniki v shakhtnom stroitel'stve]. Shirat, E.N., Moscow, Nedra, 1978, 262p., In Russian with English table of contents enclosed. 40 refs.  
Mining, Soil freezing, Excavation, Vibration, Artificial freezing, Shaft sinking, Pile driving, Steel structures, Piles, Clays, Construction equipment, Quicksand.

34-849

Pressure pipelines for water supply of railroads. [Napornyye vodovody zheleznodorozhnogo vodosnabzheniya]. Dikarevskii, V.S., et al, Moscow, Transport, 1978, 278p. (Pertinent p. 198-231). In Russian. 36 refs. Krasnianskii, I.I.

DLC TF290.D54

Railroads, Water supply, Water pipelines, Permafrost beneath structures, Frost protection, Pipe laying, Pipeline heating, Thermal insulation, Pipeline freezing.

34-850

Structure and properties of cement concretes. [Struktura i svoystva tsementnykh betonov]. Sheikin, A.E., et al, Moscow, Stroiizdat, 1979, 344p. In Russian with English table of contents enclosed. 262 refs.

Chekhovskii, I.U.V., Brusser, M.I.

Concretes, Cements, Frost resistance, Concrete freezing, Concrete strength, Frost shattering, Concrete admixtures.

34-851

Structural criterion of concrete frost resistance. [Strukturny kriterii morozostokosti betona]. Dvorkin, L.I., et al, Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniya. Izvestiya vysshikh uchebnykh zavedeniy. Stroitel'stvo i arkhitektura, 1979, No.5, p.75-78. In Russian. 8 refs. Shushpanov, V.A.

Concretes, Concrete aggregates, Concrete structures, Concrete strength, Frost resistance, Porosity, Capillarity.

34-852

Experimental studies of the thermal regime of permafrost slopes of a stream valley at their junction with a filter dam. [Eksperimental'nye issledovaniya termicheskogo rezhima l'distogo berega doliny v primykani k fil'truishech plotin].

Belan, V.I., Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniya. Izvestiya vysshikh uchebnykh zavedeniy. Stroitel'stvo i arkhitektura, 1979, No.5, p.97-100. In Russian. 6 refs.

Models, Permafrost beneath structures, Slope stability, Hydraulic structures, Valleys, Ground ice, Ice melting, Filter dams.

34-853

Influence of severe climatic conditions on the amount and variation of moisture in walls of buildings in Noril'sk. [Vliyanie surovosti klimata na velichinu i kharakter izmeneniya vlazhnosti v stenakh zdaniy, eksploatiruemyykh v Noril'ske].

Vas'kovskii, A.P., Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniya. Izvestiya vysshikh uchebnykh zavedeniy. Stroitel'stvo i arkhitektura, 1979, No.5, p.116-121. In Russian. 5 refs.

Permafrost beneath structures, Walls, Humidity, Climatic factors, Subarctic regions, Buildings, Construction materials.

34-854

Two cements used in the silication of loess with the product of azeotropic rectification of acid waste waters. [Dvukhraznaya silikatizatsiya lessovogo grunta s primeneniem produkta azeotropnoi rektifikatsii kislykh stochnykh vod].

Petrenko, L.K., et al, Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniya. Izvestiya vysshikh uchebnykh zavedeniy. Stroitel'stvo i arkhitektura, 1979, No.5, p.127-130. In Russian. 1 ref.

Liashchenko, A.I., Sheikhet, I.M. Clay soils, Fines, Soil stabilization, Cements, Soil strength, Shear strength.

34-855

Determining thickness of icing when designing 0.4 to 35 kv overhead lines. [Opredelenie tolschiny stenok gololeda pri proektirovani VL 0.4-35 kV].

Narozhnyi, V.B., Energeticheskoe stroitel'stvo, Aug. 1979, No.8, p.63-64. In Russian. 2 refs.

Ice loads, Power line icing, Design, Ice thickness.

34-856

Improving the performance of construction equipment. [Povysheniye ekspluatatsionnykh kachestv stroitel'nykh mashin].

Pankrashkin, P.V., Mekhanizatsiya stroitel'stva, Sep. 1979, No.9, p.11-13. In Russian.

Earthwork, Frozen ground.

34-857

Current climatic changes and their impact on the ice regime of the Arctic seas. [Zakharov, V.F., Polar geography, 1978, 2(2), p.115-119. For Russian original see 31-3544. 4 refs.

Sea ice distribution, Ice conditions, Climatic changes.

34-858

Classification of cryogenic formations in Caucasus. [Opyt klassifikatsii kriogenykh obrazovaniy Kavkaza].

Bondyrev, I.V., Akademiya nauk Gruzinskoi SSR. Soobshcheniya, July 1979, 95(1), p.105-108. In Russian with English and Georgian summaries. 11 refs. Geocryology, Periglacial processes, Patterned ground, Classifications, Mapping.

34-859

Studying stability of the algorithm of a mixed variational-pivotal method in designing arch dams for temperature effects. [Issledovanie ustoychivosti algoritma smeshannogo variatsionno-sterzhnevo metoda v sluchae rascheta arochnykh plotin na temperaturnye vozdeystviya].

Verkhovskiy, A.A., Akademiya nauk Gruzinskoi SSR. Soobshcheniya, July 1979, 95(1), p.113-116. In Russian with English and Georgian summaries. 4 refs.

Hydraulic structures, Dams, Thermal stresses, Design.

34-860

Steady in-plane deformation of noncoaxial plastic soil.

Takagi, S., International journal of engineering science, 1979, Vol.17, MP 1248, p.1049-1072, 27 refs.

Soil creep, Plastic properties, Theories, Boundary value problems, Analysis (mathematics).

Presented in this paper is the theory of the steady in-plane deformation, obeying the Coulomb yield criterion, of plastic soils whose strain rate and stress principal directions are non-coaxial. The constitutive equations including an unknown noncoaxial angle are derived by use of the geometry of the Mohr circle and the theory of characteristic lines. A boundary value problem is solved by assigning to the non-coaxial angle a set of such values that enable us to accommodate the presupposed type of flow satisfying the given boundary conditions in a given domain. The plastic material regulated by the Coulomb yield criterion in in-plane deformation is, therefore, a singular material whose constitutive equations are not constant with material but are variable with flow conditions.

34-861

Pipeline revegetation research: grasses, legumes and shrubs adjacent to the Alaska Highway of Yukon Territory.

Vaartnou and Sons Enterprises, Ltd., Foothills Pipe Lines (Yukon), Ltd., 1978, 47p., 19 refs.

Plants (botany), Revegetation, Grasses.

34-862

Pipeline revegetation research: Dempster route test sites progress report—1977.

Vaartnou and Sons Enterprises, Ltd., Foothills Pipe Lines (Yukon), Ltd., 1978, 28p., 35 refs.

Plants (botany), Revegetation, Alpine tundra, Forest land.

34-863

Pipeline revegetation research: Haines Junction test site progress report—1977.

Vaartnou and Sons Enterprises, Ltd., Foothills Pipe Lines (Yukon), Ltd., 1978, 41p.

Plants (botany), Revegetation, Pipelines.

34-864

Pipeline revegetation research: Northern British Columbia test sites progress report—1977.

Vaartnou and Sons Enterprises, Ltd., Foothills Pipe Lines (Yukon), Ltd., 1978, 56p.

Plants (botany), Revegetation, Pipelines.

34-865

Flame drilling through the Ross Ice Shelf.

Browning, J.A., Northern engineer, Spring 1978, 10(1), p.4-8, 4 refs.

Ice drills, Thermal drills, Antarctica—Ross Ice Shelf.

Described in the article are the flame drilling equipment and some of the problems associated with drilling on the Ross Ice Shelf. A flame jet, produced by the continuous combustion of fuel oil in a high pressure air flow, melted the ice to the sea in about 7 drilling hours. Major problems were hose feed arrangements and the risk of hole closure.

34-866

Using a programmable calculator to determine thermal conductivity of mineral soils.

Nidowicz, B., Northern engineer, Spring 1978, 10(1), p.9-14, 2 refs.

Soils, Frozen ground physics, Thermal conductivity, Computer programs.

34-867

Pollution characteristics in an unpolluted subarctic stream.

Peterson, L.A., Northern engineer, Spring 1978, 10(1), p.15-17, 15 refs.

Streams, Water pollution.

34-868

Heat loss through open doors.

Johnson, P., Northern engineer, Summer 1978, 10(2), p.4-8, 3 refs.

Heat loss, Air flow, Doors.

34-869

Cold Regions Research and Engineering Laboratory. Freitag, D.R., Northern engineer, Fall 1977, 10(3), MP 1251, p.4-6.

Laboratories, USA CRREL.

34-870

Recent ice observations in the Alaskan Beaufort Sea federal-state lease area.

Kovacs, A., Northern engineer, Fall 1978, 10(3), MP 1252, p.7-12.

Sea ice, Fast ice, Radar echoes, Pressure ridges, Seismic surveys.

34-871

Design and construction of temporary airfields in the National Petroleum Reserve—Alaska.

Crory, F.E., Northern engineer, Fall 1978, 10(3), MP 1253, p.13-15, 1 ref.

Aircraft landing areas.

34-872

Human-induced thermokarst at old drill sites in northern Alaska.

Lawson, D.E., et al, Northern engineer, Fall 1978, 10(3), MP 1254, p.16-23, 16 refs.

Brown, J.

Tundra, Soil erosion, Thermokarst, Human factors, Active layer, Subsidence.

34-873

Overconsolidated sediments in the Beaufort Sea.

Chamberlain, E., Northern engineer, Fall 1978, 10(3), MP 1255, p.24-29, 15 refs.

Bottom sediment, Thaw consolidation, Clay soils, Freeze thaw cycles.

34-874

Waste heat recovery for heating purposes.

Phetteplace, G., Northern engineer, Fall 1978, 10(3), MP 1256, p.30-33.

Heat recovery, Heating, Pumps.

34-875

Optical methods of studying oceans and inland water bodies. [Opticheskie metody izucheniya okeanov i vnutrennikh vodoemov].

Galazil, G.I., ed, Novosibirsk, Nauka, 1979, 373p. In Russian. For selected papers see 34-876 through 34-882. Refs. passim.

Shifrin, K.S., ed, Sherstiankin, P.P., ed.

Ocean environments, Lakes, Infrared reconnaissance, Aerial surveys, Sea water, Lake water, Optical properties, Measuring instruments, Sea ice, Lake ice, Classifications.

34-876

Development of hydro-optical studies of the Lake Baykal. [Razvitiye gidroopticheskikh issledovaniy na Baikale].

Sherstiankin, P.P., Opticheskie metody izucheniya okeanov i vnutrennikh vodoemov (Optical methods of studying oceans and inland water bodies) edited by G.I. Galazil, K.S. Shifrin and P.P. Sherstiankin, Novosibirsk, Nauka, 1979, p.16-27. In Russian. 30 refs.

Lake water, Optical properties, Transparency, Lake ice, Snow cover, Albedo, Limnology, USSR—Baykal Lake.

34-877

Determining surface temperature gradient at the liquid phase boundary of the sea-atmosphere system. [Opredeleniye poverkhnostnogo temperaturnogo perepada na granitse razdela zhidkoi fazy sistemy more-atmosfera].

Melnikov, G.S., et al, Opticheskie metody izucheniya okeanov i vnutrennikh vodoemov (Optical methods of studying oceans and inland water bodies) edited by G.I. Galazil, K.S. Shifrin and P.P. Sherstiankin, Novosibirsk, Nauka, 1979, p.212-219. In Russian. 9 refs.

Mineev, E.N.

Sea water, Air water interactions, Phase transformations, Temperature gradients, Infrared radiation, Measuring instruments.

34-878

**Structure of the infrared thermal radiation field of snow-ice covers on water bodies.** (Struktura polia sobstvennogo teplovogo izlucheniia snezhnoledianogo pokrova vodoemov v IK oblasti spektra). Bogorodskii, V.V., et al. Opticheskie metody izucheniia okeanov i vnutrennikh vodoemov (Optical methods of studying oceans and inland water bodies) edited by G.I. Galazil, K.S. Shifrin and P.P. Sherstiankin. Novosibirsk, Nauka, 1979, p.235-241. In Russian. 5 refs.

Martynova, E.A., Spitsyn, V.A.  
**Ice cover thickness, Snow cover distribution, Thermal radiation, Infrared reconnaissance, Sea ice, Lake ice.**

34-879

**Apparatus for studying radiation temperature at the ocean surface.** (Kompleksnaia ustanovka dlia issledovaniia radiatsionnoi temperatury poverkhnosti okeana).

Novogrudskii, B.V., et al. Opticheskie metody izucheniia okeanov i vnutrennikh vodoemov (Optical methods of studying oceans and inland water bodies) edited by G.I. Galazil, K.S. Shifrin and P.P. Sherstiankin. Novosibirsk, Nauka, 1979, p.241-245. In Russian. 4 refs.

Beliaikov, G.N.  
**Ocean environments, Sea water, Surface temperature, Measuring instruments, Air water interactions, Heat transfer.**

34-880

**Horizontal irradiation in the visible spectrum under ice in the Ivano-Arakhley lakes (Transbaikal).** (Gorizontal'nye obluchennosti v vidimoi oblasti spektra podo l'dom Ivano-Arakhleiskikh ozer (Zabaikal'e)). Vologdin, M.P., et al. Opticheskie metody izucheniia okeanov i vnutrennikh vodoemov (Optical methods of studying oceans and inland water bodies) edited by G.I. Galazil, K.S. Shifrin and P.P. Sherstiankin. Novosibirsk, Nauka, 1979, p.274-281. In Russian. 8 refs.

Sherstiankin, P.P.  
**Lake water, Lake ice, Ice cover thickness, Solar radiation, Light transmission, Subglacial observations, Measuring instruments, Snow cover effect.**

34-881

**Light attenuation indices in the Ivano-Arakhley lakes (Transbaikal) during winter.** (Pokazateli oslableniia svetovogo izlucheniia dlia vod Ivano-Arakhleiskikh ozer (Zabaikal'e) v zimnii period). Vologdin, M.P., et al. Opticheskie metody izucheniia okeanov i vnutrennikh vodoemov (Optical methods of studying oceans and inland water bodies) edited by G.I. Galazil, K.S. Shifrin and P.P. Sherstiankin. Novosibirsk, Nauka, 1979, p.281-285. In Russian. 6 refs.

Sherstiankin, P.P.  
**Lake water, Lake ice, Ice cover thickness, Light transmission, Snow cover effect.**

34-882

**Optical classification of natural ice.** (Opticheskaia klassifikatsiia estestvennykh l'dov). Bogorodskii, V.V., et al. Opticheskie metody izucheniia okeanov i vnutrennikh vodoemov (Optical methods of studying oceans and inland water bodies) edited by G.I. Galazil, K.S. Shifrin and P.P. Sherstiankin. Novosibirsk, Nauka, 1979, p.341-347. In Russian. 6 refs.

Gaitshokhi, B.I.A.  
**Sea ice, Lake ice, Ice crystals, Ice cover thickness, Ice composition, Ice structure, Optical properties, Classifications.**

34-883

**Hydrologic and geothermal peculiarities of permafrost areas in the USSR.** (Gidro-geotermicheskie osobennosti kriogennoi oblasti SSSR). Fotiev, S.M., Moscow, Nauka, 1978, 236p., In Russian with English table of contents enclosed. Refs. p.223-235.

DLC GB648.55.F67  
**Permafrost distribution, Geologic structures, Permafrost origin, Geocryology, Permafrost structure, Permafrost hydrology, Permafrost thermal properties, Mapping, Classifications, Charts.**

34-884

**Initial and sustained strength of clay soils.** (Nachal'naiia i dlitel'naiia prochnost' glinistykh gruntov). Meschian, S.R., Moscow, Nedra, 1978, 207p., In Russian with English table of contents enclosed. 200 refs.  
**Soil mechanics, Clays, Clay soils, Sands, Loams, Loess, Soil strength, Soil structure, Soil freezing.**

34-885

**Human influence on forest landscapes (Kan-Biryusa Plain).** (Antropogennoe vozdelstvie na lesnoi landshaft (na primere Kansko-Biriusinskoi ravniny)). Rubtsov, N.I., et al. Novosibirsk, Nauka, 1978, 128p., In Russian with English table of contents enclosed. Refs. p.105-110.

Zvirbul', A.P.  
DLC QH191.R8  
**Forestry, Human factors engineering, Environmental protection, Taiga.**

34-886

**Expansion joints in highway bridges.** (Deformatsionnye shvy v avtodorozhnykh mostakh). Shesteril'ov, V.I., Moscow, Transport, 1978, 151p., In Russian with English table of contents enclosed. 87 refs.

DLC TG325.6.S47  
**Steel structures, Bridges, Joints (junctions), Thermal stresses, Deformation, Cold weather operation, Ice formation, Metal ice friction, Chemical ice prevention.**

34-887

**Effect of wind orography in the free atmosphere on air circulation above glaciers.** (O vlianii orografii vetra v svobodnoi atmosfere na tsirkulatsiiu vozdukh na nad lednikami).

Ni, A.A., et al. *Sredneaziatskii regional'nyi nauchno-issledovatel'skii gidrometeorologicheskii institut. Trudy*, 1977, 49(130), p.30-34. In Russian. Petrov, V.L., Sirota, I.U.A.

**Glacier ice, Ice surface, Atmospheric disturbances, Wind (meteorology).**

34-888

**Vertical profile of glacier wind (numerical experiment).** (Vertikal'nyi profil' lednikovogo vetra (chislennyi eksperiment)).

Ni, A.A., et al. *Sredneaziatskii regional'nyi nauchno-issledovatel'skii gidrometeorologicheskii institut. Trudy*, 1977, 49(130), p.35-40. In Russian. 5 refs. Lykosov, V.N.

**Glacier ice, Ice surface, Heat transfer, Atmospheric disturbances, Turbulent flow, Wind (meteorology), Glacier melting.**

34-889

**Remote sounding of high clouds: 1. Calculation of visible and infrared optical properties from lidar and radiometer measurements.**

Platt, C.M.R., *Journal of applied meteorology*, Sep. 1979, 18(9), p.1130-1143, 24 refs.

**Supercooled clouds, Ice crystal optics, Backscattering, Infrared radiation, Remote sensing, Lidar, Optical properties.**

34-890

**Emissivity correction for interpreting thermal radiation from the terrestrial surface.**

Sutherland, R.A., et al. *Journal of applied meteorology*, Sep. 1979, 18(9), p.1165-1171, 12 refs.

Bartholic, J.F., Gerber, J.F.  
**Thermal radiation, Temperature measurement, Surface temperature, Stefan problem.**

34-891

**Comments on the Climax and Wolf Creek Pass cloud seeding experiments.**

Hobbs, P.V., et al. *Journal of applied meteorology*, Sep. 1979, 18(9), p.1233-1237, 13 refs.

Rangno, A.L.  
**Cloud seeding, Ice crystals, Temperature factors, Mountains.**

34-892

**Annotated bibliography on northern environmental engineering, 1974-75.**

Cameron, J.J., et al. *Canada. Environmental Protection Service. Water Pollution Control Directorate. Report*, Mar. 1977, EPS 3-WP-77-6, 154p. Smith, D.W.

**Engineering, Environments, Polar regions, Bibliographies, Ecology.**

34-893

**Biochemical activities of organic soils from subantarctic tussock grasslands on Campbell Island. 1. Oxygen uptakes and nitrogen mineralisation.**

Ross, D.J., et al. *New Zealand journal of science*, June 1979, 22(2), p.161-171, 23 refs.

Campbell, I.B., Bridger, B.A.  
**Soil chemistry, Soil science, Organic soils, Campbell Island.**

Oxygen uptakes and nitrogen (N) mineralization were measured with samples of organic soils taken at 4 or 5 depths from tussock grasslands at 5 sites ranging in altitude from 45 to 400 m on subantarctic Campbell Island. An altitudinal sequence in chemical or biochemical properties was not evident, probably because of local site effects. Although these soils have been

shown to be potentially active biochemically, metabolism in the field would be severely restricted by the prevailing cool climate (Auth. mod.)

34-894

**Biochemical activities of organic soils from subantarctic tussock grasslands on Campbell Island. 2. Enzyme activities.**

Ross, D.J., et al. *New Zealand journal of science*, 1979, 22(2), p.173-182, 26 refs.

Speir, T.W.  
**Soil science, Organic soils, Soil chemistry, Campbell Island.**

Invertase, amylase, cellulase, hemicellulase, urease, phosphatase, and sulphatase activities were high, on a soil dry weight basis, in the top horizon of organic soils from 6 sites on subantarctic Campbell Island. They generally declined with soil depth, more rapidly than did organic C contents. The enzyme activities were correlated negatively, and generally significantly, with degree of peat decomposition and mainly non-significantly, although positively, with soil organic C and total N contents. All of the enzyme activities, with the partial exception of hemicellulase, were correlated significantly with each other and with soil oxygen uptakes. Most of the enzyme activities were appreciably higher in standing dead material of the tussock grass *Poa litorea* than in the top horizon of soil at each site; sulphatase activity, however, was always lower in standing dead material, and urease activity varied with site. Although a direct contribution by tussock plant material to soil enzyme activities (except sulphatase) appears likely the levels of enzymes in these soils were (except for invertase) not directly related to the enzyme activities of tussock plant material (Auth.)

34-895

**Collected papers on sciences of atmosphere and hydrosphere, Volume 15.**

Nagoya, Japan. University. Water Research Institute. Nagoya, University, 1977, var.p., Refs. passim. For selected articles see 32-962, 32-3816 and 34-896 through 34-906.

**Glacier surveys, Mountain glaciers, Fallout, Glacier oscillation, Climatic factors, Topographic factors, Himalaya Mountains.**

34-896

**Characteristics of glaciers in the Khumbu region and their recent variations.**

Moribayashi, S., et al. *Seppyo. Special issue*, 1977, Vol.39, Nagoya, Japan. University. Water Research Institute. Collected papers on sciences of atmosphere and hydrosphere, Vol.15, p.3-6, Paper No.14. 3 refs.

Higuchi, K.  
**Glacier oscillation, Impurities, Glacier surveys, Mountain glaciers.**

34-897

**Statistical analyses of the forms of the glaciers in the Khumbu Himal.**

Fujii, Y., et al. *Seppyo. Special issue*, 1977, Vol.39, Nagoya, Japan. University. Water Research Institute. Collected papers on sciences of atmosphere and hydrosphere, Vol.15, p.7-14, Paper No.15. 8 refs.

Higuchi, K.  
**Glacier surfaces, Mountain glaciers, Topographic features, Impurities, Glacial deposits, Glacier beds, Statistical analysis.**

34-898

**Field experiment on glacier ablation under a layer of debris cover.**

Fujii, Y., *Seppyo. Special issue*, 1977, Vol.39, Nagoya, Japan. University. Water Research Institute. Collected papers on sciences of atmosphere and hydrosphere, Vol.15, p.20-21, Paper No.16. 5 refs.

**Glacier mass balance, Ablation, Mountain glaciers, Impurities, Snow melting.**

34-899

**Ice cliffs and exposed stratigraphy of Kongma Glacier, Khumbu.**

Wushiki, H., *Seppyo. Special issue*, 1977, Vol.39, Nagoya, Japan. University. Water Research Institute. Collected papers on sciences of atmosphere and hydrosphere, Vol.15, p.22-25, Paper No.17. 3 refs.

**Stratigraphy, Glacier surveys, Seasonal variations, Radioactive isotopes, Mountain glaciers.**

34-900

**Stratigraphic study of the snow cover in Khumbu Himal.**

Inoue, J., et al. *Seppyo. Special issue*, 1977, Vol.39, Nagoya, Japan. University. Water Research Institute. Collected papers on sciences of atmosphere and hydrosphere, Vol.15, p.26-29, Paper No.18. 2 refs.

Nagoshi, A.  
**Snow stratigraphy, Snow depth, Glacier surveys, Snow accumulation, Elevation.**



- 34-901**  
Structural studies of glaciers in the Khumbu region. Fushimi, H., *Seppyo. Special issue*, 1977, Vol.39, Nagoya, Japan. University. Water Research Institute. Collected papers on sciences of atmosphere and hydrosphere, Vol.15, p.30-39, Paper No.19. 7 refs. Glacier flow, Ice structure, Mountain glaciers, Impurities, Ice crystal structure, Topographic features, Climatic factors, Rocks, Sands, Clays.
- 34-902**  
Deuterium content of stream waters of glacier origin in Himalayas. Wushiki, H., *Seppyo. Special issue*, 1977, Vol.39, Nagoya, Japan. University. Water Research Institute. Collected papers on sciences of atmosphere and hydrosphere, Vol.15, p.40-42, Paper No.20. 4 refs. Glacial rivers, Water pollution, Fallout, Seasonal variations, Meltwater, Climatic factors, Radiactive isotopes.
- 34-903**  
Effect of nocturnal precipitation on the mass balance of the Rikha Glacier, Hidden Valley, Nepal. Higuchi, K., *Seppyo. Special issue*, 1977, Vol.39, Nagoya, Japan. University. Water Research Institute. Collected papers on sciences of atmosphere and hydrosphere, Vol.15, p.43-49, Paper No.21. 6 refs. Glacier mass balance, Precipitation (meteorology), Diurnal variations, Ablation, Mountain glaciers.
- 34-904**  
Deuterium content in the Himalayan precipitation at Khumbu District, observed in 1974/1975. Wushiki, H., *Seppyo. Special issue*, 1977, Vol.39, Nagoya, Japan. University. Water Research Institute. Collected papers on sciences of atmosphere and hydrosphere, Vol.15, p.50-56, Paper No.22. 6 refs. Snowfall, Precipitation (meteorology), Fallout, Seasonal variations, Climatic factors, Radioactive isotopes, Mountains.
- 34-905**  
Altitude effect on the deuterium content of the local rains and snows in the Himalayas. Wushiki, H., *Seppyo. Special issue*, 1977, Vol.39, Nagoya, Japan. University. Water Research Institute. Collected papers on sciences of atmosphere and hydrosphere, Vol.15, p.57-59, Paper No.23. 4 refs. Pollution, Fallout, Snowfall, Precipitation (meteorology), Elevation, Mountains.
- 34-906**  
Glaciations in the Khumbu Himal (1). Fushimi, H., *Seppyo. Special issue*, 1977, Vol.39, Nagoya, Japan. University. Water Research Institute. Collected papers on sciences of atmosphere and hydrosphere, Vol.15, p.60-67, Paper No.24. 11 refs. Glacier oscillation, Glacier surges, Glaciation, Topographic factors, Climatic factors, Snow accumulation, Moraines, Erosion, Geomorphology.
- 34-907**  
Environmental chemistry and cycling processes. Symposium on Environmental Chemistry and Cycling Processes, Augusta, Georgia, April 28-May 1, 1976. DOE symposium series, No.45, Washington, D.C., U.S. Department of Energy, Technical Information Center, 1978, 911p., CONF-760429, Refs. passim. For selected papers see 33-3845 and 34-908 through 34-912.
- Adriano, D.C., ed, Brisbin, I.L., ed. *Tundra, Nutrient cycle, Ecosystems, Soil pollution, Human factors, Oil spills, Environments*.
- 34-908**  
Problems of synthesis in mineral cycling studies: the tundra as an example. Miller, P.C., Symposium on Environmental Chemistry and Cycling Processes, Augusta, Georgia, April 28-May 1, 1976. Proceedings. Edited by D.C. Adriano and I.L. Brisbin, Jr., DOE symposium series, No.45, Washington, D.C., U.S. Department of Energy, Technical Information Center, 1978, p.59-71, CONF-760429, 14 refs.
- 34-909**  
Tundra, Models.
- 34-909**  
Phosphorus dynamics of wet coastal tundra soils near Barrow, Alaska. Barèl, D., et al, Symposium on Environmental Chemistry and Cycling Processes, Augusta, Georgia, April 28-May 1, 1976. Proceedings. Edited by D.C. Adriano and I.L. Brisbin, Jr., DOE symposium series, No.45, Washington, D.C., U.S. Department of Energy, Technical Information Center, 1978, p.516-536, CONF-760429, Refs. p.534-536.
- Bardsdale, R.J. *Tundra, Nutrient cycle, United States—Alaska—Barrow*.
- 34-910**  
Impact of crude oil on root respiration and levels of soluble soil cellulase in coastal Arctic tundra. Linkins, A.E., et al, Symposium on Environmental Chemistry and Cycling Processes, Augusta, Georgia, April 28-May 1, 1976. Proceedings. Edited by D.C. Adriano and I.L. Brisbin, Jr., DOE symposium series, No.45, Washington, D.C., U.S. Department of Energy, Technical Information Center, 1978, p.590-604, CONF-760429, Refs. p.602-604.
- Antibus, R.K., Miller, O.K., Laursen, G.A. *Tundra, Oil spills, Roots, Environmental impact, Soil pollution*.
- 34-911**  
Controls on decomposition and mineral release in wet meadow tundra—a simulation approach. Barkley, S.A., et al, Symposium on Environmental Chemistry and Cycling Processes, Augusta, Georgia, April 28-May 1, 1976. Proceedings. Edited by D.C. Adriano and I.L. Brisbin, Jr., DOE symposium series, No.45, Washington, D.C., U.S. Department of Energy, Technical Information Center, 1978, p.754-778, CONF-760429, Refs. p.775-778.
- Barèl, D., Stoner, W.A., Miller, P.C. *Minerals, Tundra, Nutrient cycle, Bacteria, Decomposition, Fungi, Thermal effects, Models*.
- 34-912**  
Effect of Prudhoe crude oil on carbon assimilation by planktonic algae in an Arctic pond. Miller, M.C., et al, Symposium on Environmental Chemistry and Cycling Processes, Augusta, Georgia, April 28-May 1, 1976. Proceedings. Edited by D.C. Adriano and I.L. Brisbin, Jr., DOE symposium series, No.45, Washington, D.C., U.S. Department of Energy, Technical Information Center, 1978, p.833-850, CONF-760429, 33 refs.
- Hater, G.R., Vestal, J.R. *Oil spills, Ponds, Nutrient cycle, Biomass, Algae, Plankton*.
- 34-913**  
Volumetric constitutive law for snow subjected to large strains and strain rates. Brown, R.L., *U.S. Army Cold Regions Research and Engineering Laboratory*, Aug. 1979, CR 79-20, 13p., ADA-075 474, 10 refs.
- Snow deformation, Snow compression, Volume, Strains, Strain tests, Dynamic loads, Tracked vehicles*.
- A volumetric constitutive equation was developed to characterize the behavior of snow subjected to large compressive volumetric deformations. By treating the material as a suspension of air voids in a matrix material of polycrystalline ice, a rate-dependent volumetric constitutive law was formulated and found to accurately predict material response to pressure loads for a wide range of load rates. Comparison of the theory with shock wave data was not considered in this paper, although the constitutive law appears to be valid for such load situations. One application to oversnow mobility of tracked vehicles was made. In this case, power requirements due to snow compaction were calculated parametrically in terms of vehicle speed, track loading, and snow density.
- 34-914**  
Classification of fire effects on the microclimate of forest and tundra ecosystems—final report. Rouse, W.R., et al, Environmental studies No.2, Ottawa, Canada, Department of Indian Affairs and Northern Development, 1976, 21p., 10 refs.
- Mills, P.F. *Forest ecosystems, Tundra, Microclimatology, Fires*.
- 34-915**  
Canadian oil industry's scientific activities in the Arctic offshore. Pallister, A.E. 1977, 14p. + append., Numerous refs. Presented at the International Symposium on the Long Term Recovery Potential of Cold Water Marine Environments After Oil Spills, Halifax, Nova Scotia, 1977.
- Oil spills, Sea ice*.
- 34-916**  
Movement and deformation of landfast ice in the southern Beaufort Sea. Cooper, P.F., Jr., *Canada. Beaufort Sea Project. Technical report*, Dec. 1975, No.37, 16p., 2 refs.
- Sea ice, Fast ice, Drift, Strains*.
- 34-917**  
Spring break-up observations at proposed polar gas pipeline crossing sites of Keewatin rivers. Grey, B.J., Ottawa, Canada, Department of Indian Affairs and Northern Development, 1978, 22p., In English with French summary. 13 refs.
- River crossings, Ice breakup, Gas pipelines*.
- 34-918**  
Mt. Logan field report 1975. Holdsworth, G., Canada, Department of the Environment, 1976, 21p., Unpublished report. 13 refs.
- Ice cores, Ice composition, Ice deformation, Canada—Yukon Territory—Mt. Logan*.
- 34-919**  
Workshop on the Bearing Capacity of Ice Covers, 16-17 October 1978, Winnipeg, Manitoba. National Research Council, Canada. Associate Committee on Geotechnical Research. Snow and Ice Subcommittee, National Research Council, Canada. Associate Committee on Geotechnical Research. Technical memorandum no.123, May 1979, 253p., For individual papers see 34-920 through 34-935.
- Meetings, Ice cover strength, Floating ice, Ice mechanics, Dynamic loads*.
- 34-920**  
Field studies on the response of floating ice sheets to moving loads. Beltaos, S., *National Research Council, Canada. Associate Committee on Geotechnical Research. Technical memorandum*, May 1979, No.123, p.1-13, 5 refs.
- Floating ice, Dynamic loads, Ice cover thickness, Water depth*.
- 34-921**  
Surface strain of artificially thickened ice drilling platforms. Allan, A.J., *National Research Council, Canada. Associate Committee on Geotechnical Research. Technical memorandum*, May 1979, No.123, p.14-24, 7 refs.
- Offshore drilling, Ice cover thickness, Artificial ice, Strains*.
- 34-922**  
Results of strain measurements in floating ice platforms using 3 m-long resistance wire gauges. Masterson, D.M., et al, *National Research Council, Canada. Associate Committee on Geotechnical Research. Technical memorandum*, May 1979, No.123, p.25-41, 10 refs.
- Anderson, K.G., Strandberg, A.G. *Floating ice, Strain measuring instruments*.
- 34-923**  
In situ determination of creep properties of ice covers by means of bore-hole creep and relaxation tests. Ladanyi, B., et al, *National Research Council, Canada. Associate Committee on Geotechnical Research. Technical memorandum*, May 1979, No.123, p.44-64, 11 refs.
- Barthelemy, E., Saint-Pierre, R. *Ice creep, Boreholes, Relaxation (mechanics), Rheology, Ice pressure*.
- 34-924**  
Grain-size influence on effective modulus of ice. Sinha, N.K., *National Research Council, Canada. Associate Committee on Geotechnical Research. Technical memorandum*, May 1979, No.123, p.65-79, 14 refs.
- Ice creep, Viscoelasticity, Ice structure, Mathematical models*.
- 34-925**  
Time-dependent deflection of an ice plate. Michel, B., et al, *National Research Council, Canada. Associate Committee on Geotechnical Research. Technical memorandum*, May 1979, No.123, p.80-97, 7 refs.
- Gagnon, L. *Floating ice, Ice creep, Models, Viscoelasticity*.
- 34-926**  
Strength of ice plates. Michel, B., *National Research Council, Canada. Associate Committee on Geotechnical Research. Technical memorandum*, May 1979, No.123, p.98-106, 3 refs.
- Floating ice, Ice strength, Strain tests*.
- 34-927**  
Laboratory investigation of circular sea-ice plates. Murat, J.R., et al, *National Research Council, Canada. Associate Committee on Geotechnical Research. Technical memorandum*, May 1979, No.123, p.107-123, 18 refs.
- Tinawi, R. *Floating ice, Dynamic loads, Ice strength, Laboratory techniques*.

34-928

**Empirical analysis of the creep of floating ice sheets.** Beliaos, S., et al. *National Research Council, Canada. Associate Committee on Geotechnical Research. Technical memorandum*, May 1979, No.123, p.124-138, 8 refs.

34-929

**Floating ice, Ice creep, Time factor.**

**Problems related to the structural modelling of ice covers.**

Tinawi, R., *National Research Council, Canada. Associate Committee on Geotechnical Research. Technical memorandum*, May 1979, No.123, p.139-156, 28 refs.

**Ice cover strength, Flexural strength, Dynamic loads, Analysis (mathematics).**

34-930

**Long-term loading analysis of floating ice platforms using finite element techniques.**

Masterson, D.M., et al. *National Research Council, Canada. Associate Committee on Geotechnical Research. Technical memorandum*, May 1979, No.123, p.159-182, 10 refs.

34-931

**Floating ice, Ice cover strength, Ice creep, Computer applications, Loads (forces).**

**Viscoelastic finite-element analysis of floating ice islands.**

Swamidass, A.S.J., et al. *National Research Council, Canada. Associate Committee on Geotechnical Research. Technical memorandum*, May 1979, No.123, p.183-204, 27 refs.

34-932

**Floating ice, Ice creep, Viscoelasticity, Variations, Analysis (mathematics).**

**Safe ice loads computed with a pocket calculator.**

Nevel, D.E., *National Research Council, Canada. Associate Committee on Geotechnical Research. Technical memorandum*, May 1979, No.123, MP 1249, p.205-223, 3 refs.

34-933

**Ice strength, Loads (forces), Computers.**

This report provides a program for calculating the deflection and stresses of a floating ice sheet using a pocket calculator. The program user must select appropriate values for the ice mechanical properties in order to compute reliable deflection and stresses. Engineering judgement must be used to select the allowable ice strength and when dealing with non-ideal situations.

34-934

**Use of ice as an airstrip in the Thelon River valley by the Canadian Armed Forces.**

McCutcheon, D.M., *National Research Council, Canada. Associate Committee on Geotechnical Research. Technical memorandum*, May 1979, No.123, p.224-231.

**Ice runways, Ice (construction material), Rivers, Aircraft landing areas, Dynamic loads, Military operation.**

34-935

**Use of ice as structural support in the construction of the Eagle River bridge.**

McCutcheon, D.M., *National Research Council, Canada. Associate Committee on Geotechnical Research. Technical memorandum*, May 1979, No.123, p.232-237.

34-936

**Ice (construction material), Bridges.**

34-937

**Flooding of sea ice roads.**

Favrat, D., et al. *National Research Council, Canada. Associate Committee on Geotechnical Research. Technical memorandum*, May 1979, No.123, p.238-249, 4 refs.

**Roads, Ice (construction material), Artificial ice, Sea ice, Flooding.**

34-938

**Porosity and gas content of recent polar ice, applications to deep core analysis.**

Beliaos, S., et al. *National Research Council, Canada. Associate Committee on Geotechnical Research. Technical memorandum*, May 1979, No.123, p.250-261, 10 refs.

**Ice density, Gas inclusions, Ice physics, Porosity, Antarctica—Law Dome, Antarctica—Dumont d'Urville Station.**

Field studies were done at Camp Century and at a number of locations in the Antarctic to determine porosity and gas content of ice, as they vary with depth, pressure and temperature. Short-term variations only were investigated. The effect of

geographic variations on porosity and gas inclusions was also studied. Short-term gas content changes are primarily due to the different porosities of the ice layers. Gas content variations with depth can shed light on thickness of layers in the polar caps, but the area of study must be carefully chosen. Best for this purpose are the sections between 1000 and 2000 m in the Antarctic, which reveal ice changes effected by climatic change.

34-939

**Automatic apparatus for measuring low-level beta activity in snow samples.** [Dispositif automatique de mesure de la radioactivité beta à bas-niveau d'échantillons de neige].

Pinglot, J.F., France. *Centre National de la Recherche Scientifique. Laboratoire de Glaciologie. Publication*, 1978, No.257, 103p., Doctoral thesis, Institut national politechnique de Grenoble. In French. Refs. p.101-103.

**Recording instruments, Radioactivity, Snow accumulation, Snow impurities, Fallout.**

This monograph concerns various low-level beta-radiation sources in snow as well as a number of methods used to determine emissions. Analysis of natural and artificial beta radiation in polar snow samples requires an automatic device to determine low levels. The laboratory being half underground and the antiradiation chamber made it possible to eliminate cosmic radiation. The device is described in detail, and results of studies on polar snow (annual accumulation, dating, levels of natural and fission-product radiation) are presented.

34-940

**Arctic beach environment, south-west Devon Island, N.W.T.**

Owens, E.H., Hamilton, Ontario, McMaster University, 1969, 152p., M.Sc. thesis. Bibliography p.146-152.

**Beaches, Shoreline modification, Ocean waves, Sea ice, Fast ice, Tides, Ice push, Pressure ridges, Permafrost depth, Canada—Northwest Territories—Devon Island.**

34-941

**Temperature and the density dependences on hardness of artificially compacted snow.**

Kobayashi, T., Japan. *National Research Center for Disaster Prevention. Report*, Nov. 1978, No.20, p.267-292. In Japanese with English summary and captions. 15 refs.

**Snow compaction, Snow density, Snow temperature, Snow hardness.**

34-942

**Batura Glacier in the Karakoram Mountains and its variations.**

Academia Sinica. Batura Glacier Investigation Group, *Scientia sinica*, Aug. 1979, 22(8), p.958-974, 15 refs.

**Glacier ice, Glacier ablation, Glacier oscillation, Mapping, Ice forecasting.**

34-943

**Report of the International Ice Patrol services in the North Atlantic Ocean, season of 1977.**

Knutson, K.N., et al. *U.S. Coast Guard. Report*, n.d., CG-188-32, 44p. + appends.

34-944

**Sea ice, Aerial surveys, Icebergs, Ice conditions.**

**Problems of offshore oil drilling in the Beaufort Sea.**

Weller, G., et al. *Northern engineer*, Winter 1978, 10(4), MP 1250, p.4-11, 5 refs.

**Ice structure, Offshore drilling, Floating ice, Grounded ice, Sea ice distribution, Subsea permafrost.**

34-945

**Monitoring of thickness changes of the continental ice sheets by satellite altimetry.**

Brooks, R.L., *Journal of geophysical research*, July 30, 1979, 84(B8), p.3965-3968, 2 refs.

**Ice sheets, Ice cover thickness, Altitude, Ice surface, Spacecraft.**

34-946

**Effect of varying low level wind fields on the opening and closing of the ice cover in the western Weddell Sea.**

Kyle, T.H., Madison, University of Wisconsin, 1974, 91p., Master's thesis. 26 refs.

**Sea ice, Ice forecasting, Wind (meteorology), Spacecraft, Ice conditions, Weddell Sea.**

Three forms of meteorological analysis have been used for this study: meridional sea level pressure differences, low level wind directions, and cyclonic storm positions and trajectories. The results show a statistically highly significant relationship between the east-west widths of open water and all three of the meteorological parameters stated above. Average ice/wind factors of 0.6% and 1% are obtained and compare favorably with values obtained by previous investigators. High quality satellite data and extensive satellite coverage have improved trajectory forecasts for cyclones in the Southern Ocean. Forecasts

of wind-induced ice cover variations may therefore possibly be made for Antarctic regions affected by these synoptic systems. However, there is evidence that factors such as freezing and restricted freedom of movement for ice floes can also be important. Therefore, an ice-open water forecast scheme should not be based on wind stress alone.

34-947

**Some aspects of the ice topography of Trough Lake, southern Victoria Land, Antarctica.**

Lyon, G.L., *New Zealand journal of geology and geophysics*, 1979, 22(2), p.281-284, 9 refs.

**Lake ice, Floating ice, Ablation, Topography, Antarctica—Victoria Land.**

Trough Lake has a permanent cover of floating ice. Contact of the ice with the Kaituma Glacier produces pressure ridges which are modified by differential ablation. The estimated ablation rate of 300-450 mm of ice per year is higher than that at Lake Miers, 20 km north, due to the increased prevalence of katabatic winds at Trough Lake. (Auth.)

34-948

**Soil formation in landscapes affected by industrial activities.** [Pochvoobrazovanie v tekhnogennykh landshtakh].

Trofimov, S.S., ed. Novosibirsk, Nauka, 1979, 294p., In Russian. For selected articles see 34-947 through 34-957. Refs. passim.

**Human factors engineering, Landscape types, Aerial surveys, Mining.**

34-949

**Systems approach to studying soil formation processes in landscapes affected by industrial activities.** [Sistemnyi podkhod k izucheniiu protsessov pochvoobrazovaniya v tekhnogennykh landshtakh].

Trofimov, S.S., ed. Novosibirsk, Nauka, 1979, 294p., In Russian. For selected articles see 34-947 through 34-957. Refs. passim.

**Human factors engineering, Landscape types, Aerial surveys, Mining.**

34-950

**Soil formation in landscapes affected by industrial activities.** [Pochvoobrazovanie v tekhnogennykh landshtakh].

Trofimov, S.S., ed. Novosibirsk, Nauka, 1979, 294p., In Russian. For selected articles see 34-947 through 34-957. Refs. passim.

**Human factors engineering, Landscape types, Aerial surveys, Mining.**

34-951

**Soil formation in landscapes affected by industrial activities.** [Pochvoobrazovanie v tekhnogennykh landshtakh].

Trofimov, S.S., ed. Novosibirsk, Nauka, 1979, 294p., In Russian. For selected articles see 34-947 through 34-957. Refs. passim.

**Human factors engineering, Landscape types, Aerial surveys, Mining.**

34-952

**Soil formation in landscapes affected by industrial activities.** [Pochvoobrazovanie v tekhnogennykh landshtakh].

Trofimov, S.S., ed. Novosibirsk, Nauka, 1979, 294p., In Russian. For selected articles see 34-947 through 34-957. Refs. passim.

**Human factors engineering, Landscape types, Aerial surveys, Mining.**

34-953

**Soil formation in landscapes affected by industrial activities.** [Pochvoobrazovanie v tekhnogennykh landshtakh].

Trofimov, S.S., ed. Novosibirsk, Nauka, 1979, 294p., In Russian. For selected articles see 34-947 through 34-957. Refs. passim.

**Human factors engineering, Landscape types, Aerial surveys, Mining.**

34-954

**Soil formation in landscapes affected by industrial activities.** [Pochvoobrazovanie v tekhnogennykh landshtakh].

Trofimov, S.S., ed. Novosibirsk, Nauka, 1979, 294p., In Russian. For selected articles see 34-947 through 34-957. Refs. passim.

**Human factors engineering, Landscape types, Aerial surveys, Mining.**

34-955

**Soil formation in landscapes affected by industrial activities.** [Pochvoobrazovanie v tekhnogennykh landshtakh].

Trofimov, S.S., ed. Novosibirsk, Nauka, 1979, 294p., In Russian. For selected articles see 34-947 through 34-957. Refs. passim.

**Human factors engineering, Landscape types, Aerial surveys, Mining.**

34-956

**Soil formation in landscapes affected by industrial activities.** [Pochvoobrazovanie v tekhnogennykh landshtakh].

Trofimov, S.S., ed. Novosibirsk, Nauka, 1979, 294p., In Russian. For selected articles see 34-947 through 34-957. Refs. passim.

**Human factors engineering, Landscape types, Aerial surveys, Mining.**

34-957

**Soil formation in landscapes affected by industrial activities.** [Pochvoobrazovanie v tekhnogennykh landshtakh].

Trofimov, S.S., ed. Novosibirsk, Nauka, 1979, 294p., In Russian. For selected articles see 34-947 through 34-957. Refs. passim.

**Human factors engineering, Landscape types, Aerial surveys, Mining.**

34-952

Natural revegetation of the Tom' River flood-plain soils disturbed by industrial activities. (Uslovia estestvennoi regeneratsii pochv v narushennykh promyshlennost'iu landshaftakh polny verkhnego techenia r. Tomi).

Taranov, S.A., et al. Pochvoobrazovanie v tekhnogen-nykh landshaftakh (Soil formation in landscapes affected by industrial activities) edited by S.S. Trofimov. Novosibirsk, Nauka, 1979, p.156-163. In Russian. 3 refs.

Fatkuln, F.A., Rodnyuk, I.S. Mining, Revegetation, Tailings, Soil formation, Flood plains.

34-953

Early diagenesis and growth of wild and semi-cultivated plants on tailings of the Kuzbass coal mines. (Singenie i produktivnost' estestvennoi rastitel'nosti i polukul'tur fitotsenozov na otvalakh ugol'nykh razrezov Kuzbassa).

Kondrashin, E.R., Pochvoobrazovanie v tekhnogen-nykh landshaftakh (Soil formation in landscapes affected by industrial activities) edited by S.S. Trofimov. Novosibirsk, Nauka, 1979, p.163-172. In Russian. 11 refs.

Taiga.

34-954

Reforestation of coal mine tailings in the southern Kuzbass. (Lesovozobnovlenie na porodnykh otvalakh ugol'nykh razrezov Uzhnogo Kuzbassa).

Barannik, L.P., et al. Pochvoobrazovanie v tekhnogen-nykh landshaftakh (Soil formation in landscapes affected by industrial activities) edited by S.S. Trofimov. Novosibirsk, Nauka, 1979, p.172-179. In Russian. 4 refs.

Kandrashin, E.R.

Taiga.

34-955

Oxidizing activity of microorganisms in recultivated tailings of the Baydaevskii coal mine (Kuzbass). (Mikroorganizmy rekultiviruemykh otvalov Baldaevskogo uglerazreza v Kuzbasse i ikh oksislitel'naya aktivnost').

Kulebakin, V.G., Pochvoobrazovanie v tekhnogen-nykh landshaftakh (Soil formation in landscapes affected by industrial activities) edited by S.S. Trofimov. Novosibirsk, Nauka, 1979, p.179-185. In Russian. 11 refs.

Mining, Coal, Tailings, Revegetation, Soil microbiology, Taiga.

34-956

Aerial reconnaissance of landscapes affected by industrial activities. (Vozmozhnosti primeneniia aerometodov pri analize tekhnogenykh landshaftov).

Solntseva, N.P., et al. Pochvoobrazovanie v tekhnogen-nykh landshaftakh (Soil formation in landscapes affected by industrial activities) edited by S.S. Trofimov. Novosibirsk, Nauka, 1979, p.258-278. In Russian. 6 refs.

Nikolaeva, L.P.

Human factors engineering, Aerial surveys, Landscape types, Photointerpretation, Mining, Tailings, Revegetation.

34-957

Usefulness of aerial photography in evaluating lands in the Lake Baykal area of the BAM zone. (Tselesobraznost' primeneniia aerofotometodov dlia otsenki zemel'nykh resursov v pribaika'skoi zone BAM).

Parshikov, V.P., Pochvoobrazovanie v tekhnogen-nykh landshaftakh (Soil formation in landscapes affected by industrial activities) edited by S.S. Trofimov. Novosibirsk, Nauka, 1979, p.278-285. In Russian. 10 refs.

Taiga, Aerial surveys, Photointerpretation, Land development, Baykal Amur railroad.

34-958

Prognosis of rational use and protection of renewable natural resources in the Far North. (Prognoz izucheniia i okhrany vosproizvodimykh prirodnykh resursov Krai'nogo Severa).

Gel'berg, M.G., et al. Ekologicheskoe prognozirovaniie (Ecological prognostication) edited by N.N. Smirnov. Moscow, Nauka, 1979, p.14-51. In Russian with English summary. 12 refs.

Tundra, Environmental protection, Taiga, Ecosystems, Biologic cycles.

34-959

Upwelling: oceanic structure at the edge of the Arctic ice pack in winter.

Buckley, J.R., et al. *Science*, Jan. 12, 1979, 203(4376), p.165-167, 8 refs.

Gammelsrød, T., Johannessen, J.A., Johannessen, O.M., Røed, L.P.

Upwelling, Oceanography, Pack ice, Ice edge.

34-960

Detection of ice at sea by radar.

Williams, P.D.L., *Radio and electronic engineer*, June 1979, 49(6), p.275-287, 53 refs.

Sea ice distribution, Ice detection, Radar echoes, Ocean waves, Wind (meteorology), Sea clutter.

34-961

Temporary tunnel support by artificial ground freezing. Discussion.

Brahma, C.S., *American Society of Civil Engineers. Geotechnical Engineering Division. Journal*, Oct. 1979, 105(GT10), p.1260-1262, 3 refs. For paper under discussion see 33-644.

Tunneling (excavation), Soil freezing, Artificial freezing, Frozen ground strength.

34-962

Wind and snow load factors for use in LRFD. Discussion.

Simtu, E., *American Society of Civil Engineers. Structural Division. Journal*, Oct. 1979, 105(ST10), p.2130-2132, 2 refs. For paper under discussion see 33-354.

Structures, Snow loads, Wind factors.

34-963

Anisotropic properties of sea ice in the 50- to 150-MHz range.

Kovacs, A., et al. *Journal of geophysical research*, Sep. 20, 1979, 84(C9), MP 1258, p.5749-5759, 4 refs.

Morey, R.M.

Sea ice, Radar echoes, Ice crystal structure, Ocean currents, Dielectric properties, Anisotropy.

Results of impulse radar studies of sea ice near Prudhoe Bay, Alaska, show that where there is a preferred current direction under the ice cover, the crystal structure of the ice becomes highly ordered. This includes a crystal structure with a preferred horizontal c-axis that is oriented parallel with the local current. The radar studies show that this structure behaves as an anisotropic dielectric. The result is that when electromagnetic energy is radiated from a dipole antenna in which the E field is oriented perpendicular to the c-axis azimuth, no bottom reflection is detected. It was also found that the frequency dispersion of anisotropic sea ice varies in the horizontal plane. This is demonstrated by the center frequency of the reflected signal spectrum, which is maximum in the preferred c-axis direction and minimum perpendicular to it. In addition, it was found that the frequency dispersion is related to the average bulk brine volume of the ice but that the bulk dielectric constant of the ice, as determined from impulse travel time, shows little correlation with the coefficient of anisotropy.

34-964

Impact of waste diversion on water quality in lakes.

Freedman, P.L., et al. *American Society of Civil Engineers. Environmental Engineering Division. Journal*, Oct. 1979, 105(EE5), p.867-881, 15 refs.

Canal, R.P.

Lake water, Waste disposal, Water treatment, Water chemistry.

34-965

Is there liquid water on Europa.

Cassen, P., et al. *Geophysical research letters*, Sep. 1979, 6(9), p.731-734, 21 refs.

Reynolds, R.T.

Extraterrestrial ice, Water, Atmospheric physics.

34-966

Ice-foot processes. Observations of erosion on a rocky coast, Disko, West Greenland.

Nielsen, N., *Zeitschrift für Geomorphologie*, Sep. 1979, 23(3), p.321-331. In English with French and German summaries. 13 refs.

Ice erosion, Tides, Shore erosion, Rocks, Cracking (fracturing).

34-967

Vegetation of the West Okhotsk area. (Flora i rastitel'nost' Zapadnogo Priokhot'skai).

Shlotgauer, S.D., Moscow, Nauka, 1978, 132p. In Russian with English table of contents enclosed. Refs. p.116-119.

Alpine landscapes, Alpine tundra, Tundra, Charts, USSR—Zeya River.

34-968

Forest tundras of the USSR. (Tundrolye SSSR).

Parmuzin, I.U.P., Moscow, Mysl', 1979, 295p. In Russian with English table of contents enclosed. Refs. p.287-294.

Forest tundra, Tundra.

34-969

Studying and modeling soil formation in forest biogeocenoses. (Issledovanie i modelirovaniie pochvoobrazovaniia v lesnykh biogeotsenozakh).

Korsunov, V.M., ed. Novosibirsk, Nauka, 1979, 161p. In Russian. For selected papers see 34-970 through 34-978. Refs. passim.

Taiga, Soil profiles, Soil formation.

34-970

Interrelation between edaphic and coenotic factors of cropping power. (O vzaimosvazi edaficheskikh i tsenoticheskikh faktorov produktivnosti).

Pleshikov, F.I., *Issledovanie i modelirovaniie pochvoobrazovaniia v lesnykh biogeotsenozakh* (Studying and modeling soil formation in forest biogeocenoses) edited by V.M. Korsunov. Novosibirsk, Nauka, 1979, p.4-13. In Russian. 8 refs.

Forest ecosystems, Taiga.

34-971

Effect of maintenance felling on soil microflora in Pinus (cembra) sibirica forests. (Vliianie rubok ukhoda na mikrofloru pochv v kedrovnikakh).

Vishniakova, Z.V., et al. *Issledovanie i modelirovaniie pochvoobrazovaniia v lesnykh biogeotsenozakh* (Studying and modeling soil formation in forest biogeocenoses) edited by V.M. Korsunov. Novosibirsk, Nauka, 1979, p.14-22. In Russian. 17 refs.

Ermolenko, L.G.

Taiga, Biomass.

34-972

Studying the effect of natural and experimental fires on forest soils. (Osobennosti izucheniia vliianiia ognia na pochvu v usloviakh polevykh opytov i estestvennykh pozharov).

Popova, E.P., *Issledovanie i modelirovaniie pochvoobrazovaniia v lesnykh biogeotsenozakh* (Studying and modeling soil formation in forest biogeocenoses) edited by V.M. Korsunov. Novosibirsk, Nauka, 1979, p.23-29. In Russian. 3 refs.

Forest fires, Soil water, Taiga, Surface temperature.

34-973

Model experiments for determining the role of pine in the formation of variegated forest soils. (Model'nye opyty po vyavleniiu roli sosny v formirovaniie pochvennoi pestroty v lesu).

Vedrova, E.F., *Issledovanie i modelirovaniie pochvoobrazovaniia v lesnykh biogeotsenozakh* (Studying and modeling soil formation in forest biogeocenoses) edited by V.M. Korsunov. Novosibirsk, Nauka, 1979, p.30-42. In Russian. 9 refs.

Taiga, Soil formation.

34-974

Modeling taiga soils formation in the Salair Range. (Modelirovaniie pochvoobrazovaniia v usloviakh chernovol'tai Salair).

Korsunov, V.M., et al. *Issledovanie i modelirovaniie pochvoobrazovaniia v lesnykh biogeotsenozakh* (Studying and modeling soil formation in forest biogeocenoses) edited by V.M. Korsunov. Novosibirsk, Nauka, 1979, p.43-52. In Russian. 6 refs.

Korsunova, T.M.

Taiga, Soil formation.

34-975

Experimental study of biologic conversion of iron in soils. (Eksperimental'noe izuchenie protsessov biologicheskogo prevrashcheniia zheleza v pochvakh).

Sorokin, N.D., et al. *Issledovanie i modelirovaniie pochvoobrazovaniia v lesnykh biogeotsenozakh* (Studying and modeling soil formation in forest biogeocenoses) edited by V.M. Korsunov. Novosibirsk, Nauka, 1979, p.53-61. In Russian. 9 refs.

Gorbachev, V.N.

Taiga, Soil chemistry.

34-976

Chemical composition and migration of soil moisture in Salair Range landscapes. (Khimicheski sostav pochvennykh rastvorov i puti ikh migratsii v elementarnykh landshaftakh Salairskogo kriazhaja).

Korsunov, V.M., *Issledovanie i modelirovaniie pochvoobrazovaniia v lesnykh biogeotsenozakh* (Studying and modeling soil formation in forest biogeocenoses) edited by V.M. Korsunov. Novosibirsk, Nauka, 1979, p.62-67. In Russian. 5 refs.

Taiga, Soil water migration, Soil chemistry.

34-977

Studying the migration of chlorine-marked soil moisture. (Izuchenie zakononomernosti peredvizheniia vlagi metodom "mecheniia" ionom khloraja).

Shugalei, L.S., et al. *Issledovanie i modelirovaniie pochvoobrazovaniia v lesnykh biogeotsenozakh* (Studying and modeling soil formation in forest biogeocenoses) edited by V.M. Korsunov. Novosibirsk, Nauka, 1979, p.68-78. In Russian. 7 refs.

Asikhin, G.I.

Forest soils, Soil profiles, Frost penetration, Soil water migration, Markers.

- 34-978**  
Modeling the processes reflecting the influence of trees on forest soils. (Modelirovaniye protsessov vliyaniya osnovnykh drevnykh porod na pochvy.) Shugalet, L.S. Issledovanie i modelirovaniye pochvoobrazovaniya v lesnykh biogeotsenozakh (Studying and modeling soil formation in forest biogeocenoses) edited by V.M. Korsunov, Novosibirsk, Nauka, 1979, p.79-153. In Russian. Refs. p.154-157.  
**Forest soils, Soil formation, Taiga, Biomass, Soil water, Soil chemistry, Models.**
- 34-979**  
Elastic and dissipative properties of peats and organic muds. (Aromko, V.N., et al. *Soil mechanics and foundation engineering*, Jan.-Feb. 1979 (Pub. July 1979), 16(1), p.17-22. Translated from *Osnovaniya, fundamente i mekhanika gruntov*. 7 refs.  
Ses'kov, V.E.  
**Swamps, Peat, Bearing strength, Dynamic loads, Elastic properties.**
- 34-980**  
Quantitative analysis of the relation between the main thermophysical characteristics of frozen soils. (Konovalov, A.A., *Soil mechanics and foundation engineering*, Jan.-Feb. 1979 (Pub. July 1979), 16(1), p.23-37. Translated from *Osnovaniya, fundamente i mekhanika gruntov*. 8 refs.  
**Soil freezing, Frozen ground, Ground thawing, Physical properties, Thermal analysis, Soil water, Unfrozen water content, Phase transformations.**
- 34-981**  
Investigation of the bearing capacity of piles driven into plastic frozen soil. (Cherniaev, V.I., et al. *Soil mechanics and foundation engineering*, Jan.-Feb. 1979 (Pub. July 1979), 16(1), p.32-36. Translated from *Osnovaniya, fundamente i mekhanika gruntov*.  
Mironov, V.A.  
**Concrete piles, Reinforced concretes, Frozen fines, Pile driving, Construction equipment, Bearing strength, Permafrost.**
- 34-982**  
Regularities of the deformation of swelling soils with time. (Meschian, S.R., et al. *Soil mechanics and foundation engineering*, Jan.-Feb. 1979 (Pub. July 1979), 16(1), p.37-44. Translated from *Osnovaniya, fundamente i mekhanika gruntov*. 7 refs.  
Malakian, R.P.  
**Clay soils, Density (mass/volume), Flooding, Saturation, Stresses, Deformation, Rheology, Analysis (mathematics).**
- 34-983**  
Installation for the measurement of the shear stress of solids at low temperatures and high pressures. (Zharov, A.A., et al. *Instruments and experimental techniques*, Jan.-Feb. 1979 (Pub. Aug. 1979), 1(2), p.266-267. Translated from *Pribory i tekhnika eksperimenta*. 1 ref.  
Makarova, Z.G., Shakhovskot, G.P., Zhulin, V.M.  
**Solids, Compressive properties, Shear strength, Test equipment, Low temperature tests, High pressure tests.**
- 34-984**  
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Korenman, M.E., Lakhtikova, V.G., Prikhod'ko, G.L.  
**Temperature measurement.**
- 34-985**  
Resistance of steels to abrasion under different wear conditions. (Abrazivnaia iznosostokost' staley pri raznykh skhemakh iznashivaniya.) Koval'chuk, V.A., *Stroitel'stvo v raionakh Vostochnoi Sibiri i Krai nego Severa*, 1977, Vol.42, p.3-20. In Russian. 27 refs.  
**Steels, Earthwork, Permafrost.**
- 34-986**  
Effect of surface-active media on low temperature abrasive wear of metals. (O vliyaniy poverkhnostno-aktivnoi sredy na nizkotemperaturnoe abrazivnoe iznashivanie metallov.) Dorodny, V.I., *Stroitel'stvo v raionakh Vostochnoi Sibiri i Krai nego Severa*, 1977, Vol.42, p.26-31. In Russian. 12 refs.  
**Steels, Abrasion, Surfactants, Low temperature tests.**
- 34-987**  
Types of core-barrel cutting heads and their interaction with ground. (Tipy nakonechnikov trubchatykh burov i ikh vzaimodelstvie s gruntom.) Krupina, G.K., *Stroitel'stvo v raionakh Vostochnoi Sibiri i Krai nego Severa*, 1977, Vol.42, p.67-80. In Russian. 10 refs.  
**Coring, Drills, Core samplers, Permafrost.**
- 34-988**  
Determining the resistance of ground to cutting tools. (Opredeleniye sily soprotivleniya grunta rezaniyu stupenchatym nozhom.) Pul'kis, N.D., *Stroitel'stvo v raionakh Vostochnoi Sibiri i Krai nego Severa*, 1977, Vol.42, p.81-85. In Russian. 4 refs.  
**Earthwork, Permafrost.**
- 34-989**  
Excavators with thermo-mechanical cutting tools. (Mashina s termomekhanicheskim rabochim organom.) Zheleukovich, R.B., *Stroitel'stvo v raionakh Vostochnoi Sibiri i Krai nego Severa*, 1977, Vol.42, p.86-90. In Russian.  
**Earthwork, Permafrost, Gravel.**
- 34-990**  
Driving assembly KN-3-16 for vertical and inclined piles. (Koprovyi agregat KN-3-16 dlia zabivki vertikal'nykh i naklonnykh svay.) Khaibullaev, K.A., *Stroitel'stvo v raionakh Vostochnoi Sibiri i Krai nego Severa*, 1977, Vol.42, p.91-94. In Russian. 3 refs.  
**Foundations, Pile driving, Permafrost.**
- 34-991**  
Scraper and bulldozer equipment mounted on D-9Zh and DET-250 tractors used in the North. (Ispol'zovanie rykhlytelei i bul'dozero na traktorakh D-9Zh i DET-250 na Severe.) Emelin, V.I., et al. *Stroitel'stvo v raionakh Vostochnoi Sibiri i Krai nego Severa*, 1977, Vol.42, p.95-100. In Russian. 3 refs.  
Shmulevich, N.M.  
**Earthwork, Permafrost.**
- 34-992**  
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**Transportation, Helicopters, Construction equipment.**
- 34-993**  
Construction of situ-cast bored piles in Krasnoyarsk. (Osobennosti tekhnologii ustroystva buronabivnykh svay v Krasnoyarske.) Barmin, N.I., et al. *Stroitel'stvo v raionakh Vostochnoi Sibiri i Krai nego Severa*, 1977, Vol.42, p.126-131. In Russian.  
Khrebtov, N.V., Chernov, V.K.  
**Foundations, Piles, Permafrost beneath structures.**
- 34-994**  
Selecting modular structures for northern construction sites. (Metodika otbora inventarnykh sooruzhenii dlia ispol'zovaniya na stroitel'nykh ploshchadkakh v raionakh Severa.) Koposhko, V.S., *Stroitel'stvo v raionakh Vostochnoi Sibiri i Krai nego Severa*, 1977, Vol.42, p.138-140. In Russian.  
**Modular construction, Prefabrication, Pavements, Roads, Buildings, Storage, Enclosures, Permafrost beneath structures.**
- 34-995**  
Hydrogeological problems of the Baykal Amur railroad. (Gidrogeologicheskie problemy BAMa.) Pinneker, E.V., et al. *Akademiia nauk SSSR. Vestnik*, 1977, No.2, p.66-70. In Russian.  
Pisarskii, B.I.  
**Water supply, Permafrost hydrology, Snow water equivalent, Naleds, Taliks, Thermokarst, Permafrost beneath rivers, Baykal Amur railroad.**
- 34-996**  
Hydrogeochemical investigations of the BAM zone. (Gidrogeokhimicheskie issledovaniya zony BAMa.) Lomonosov, I.S., *Akademiia nauk SSSR. Vestnik*, 1977, No.6, p.87-94. In Russian.  
**Permafrost beneath structures, Naleds, Permafrost hydrology, Water supply, Water chemistry, Ground ice, Ice composition, Suprapermafrost ground water, Baykal Amur railroad.**
- 34-997**  
Ice in the lunar polar regions. (Arnold, J.R., *Journal of geophysical research*, Sep. 10, 1979, 84(B10), p.5659-5668, 52 refs.  
**Extraterrestrial ice, Moon.**
- 34-998**  
Theory and experiment for passive microwave remote sensing of snowpacks. (Kong, J.A., et al. *Journal of geophysical research*, Sep. 10, 1979, 84(B10), p.5669-5673, 7 refs.  
Shin, R., Shiue, J.C., Tsang, L.  
**Remote sensing, Snow, Microwaves, Radiometry.**
- 34-999**  
Ice sheet internal radio-echo reflections and associated physical property changes with depth. (Ackley, S.F., et al. *Journal of geophysical research*, Sep. 10, 1979, 84(B10), MP 1319, p.5675-5680, 13 refs.  
Kelher, T.E.  
**Ice sheets, Ice cores, Radio echo soundings, Ice physics, Antarctica—Folger, Cape.**  
In this paper, the measured physical properties of core to bedrock taken at Cape Folger, East Antarctica, are used to compute a depth-reflection coefficient profile for comparison with the observed radio-echo reflections. The measurements available on physical properties are density variations, bubble size and shape changes, and crystal fabric variations. In calculations to differentiate the effects of the physical properties, it appears that density variations account for the primary contributions to the calculated dielectric property changes corresponding to the highest observed reflection coefficients. However, bubble changes alone can also account for reasonable, though lower, reflection coefficients at the depths corresponding to observed reflections. Crystal fabric variations correspond poorly with the reflection locations. The close correspondence between the depths of the bubble shape changes (which are definitely deformational features) and the depths of the density variations, and between both of these and the radio-echo layers, indicates that deformational events in the ice sheet's history are represented by the variations in physical properties and associated radio-echo records. (Auth. mod.)
- 34-1000**  
Continuous record of artificial tritium fallout at the South Pole (1954-1978). (Jouzel, J., et al. *Earth and planetary science letters*, Oct. 1979, 45(1), p.188-200, 25 refs.  
Merlivat, L., Pourchet, M., Lorius, C.  
**Snow composition, Fallout, Isotope analysis, Particles, Antarctica—South Pole.**  
Snow samples were taken from a 5-m-deep pit located near the South Pole station in Jan. 1975, and continuous deuterium, tritium and beta activity profiles have been obtained from them. The first artificial tritium, due to the 1952 Ivy experiments, was detected during 1954. A two-year delay between explosions and fallout suggests that the tritium fallout is related to the main nuclear tests from 1952 to 1960. A stratospheric half residence time equal to 20 months is deduced from the fallout decrease occurring after the 1966 peak. For the French southern hemisphere experiments, it is about one year. A sharp tritium decrease is observed after a high 1973 peak, providing a new tritium reference level for future glaciological studies in Antarctica. The beta and tritium peaks occur respectively during the antarctic summer and the antarctic winter, showing different injection mechanisms. This winter input and the high tritium values registered at the South Pole indicate a preferential tritium transfer over the pole area. Two mechanisms, stratospheric-tropospheric exchange and direct stratospheric cloud precipitation, could account for this injection. (Auth. mod.)
- 34-1001**  
Proceedings of a Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. MP 1257, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, 432p., For individual papers see 34-1002 through 34-1040. Numerous refs.  
Ray, M., ed.  
**Meetings, Snow cover, Runoff, Models.**
- 34-1002**  
Snow accumulation and distribution. (Gray, D.L., et al. Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.3-33, Bibliography p.29-33.  
**Snow accumulation, Snow cover distribution, Snow physics, Meteorological factors, Topographic effects, Measurement.**
- 34-1003**  
Comparability of snowfall and snow cover data in a southern Ontario basin. (Goodison, B.E., Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.34-43, 16 refs.  
**Snowfall, Snow surveys, Measurement, Topographic effects.**



34-1004

Value of snow course data in forecasting snowmelt runoff.

Lettenmaier, D.P., Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.44-55, 4 refs.

Snow courses, Snowmelt, Runoff forecasting.

34-1005

Snow on the Great Plains.

Willis, W.O., Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.56-62, 34 refs.

Snowfall, Water supply, Wind factors.

34-1006

Role of elevation in determining spatial distributions of precipitation, snow, and water input at Mt. Mansfield, Vermont.

Hendrick, R.L., et al, Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.63-70, 8 refs.

DeAngelis, R.J., Dingman, S.L.

Precipitation (meteorology), Snow cover distribution, Altitude.

34-1007

Square grid system for modeling snow cover in small watersheds.

Dickison, R.B.B., et al, Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.71-76, 6 refs.

Daugherty, D.A.

Snow cover distribution, Models, Snow depth, Snow water equivalent.

34-1008

LANDSAT sensing of glaciers with application to mass-balance and runoff.

Breslau, D., et al, Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.77-82, 6 refs.

Busson, D.E.

Glacier mass balance, Runoff, LANDSAT, Remote sensing.

34-1009

Snow accumulation and roughness changes through the winter at a forest-tundra site near Schefferville, Quebec.

Granberg, H.B., Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.83-92, 21 refs.

Snow accumulation, Surface roughness, Forest tundra, Seasonal variations.

34-1010

Variation of snow properties with elevation in New Hampshire and Vermont.

Dingman, S.L., et al, Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.93-100, 8 refs.

Henry, E.C., Hendrick, R.L.

Snow water equivalent, Snow depth, Snow density, Altitude, Variations.

34-1011

Energy mass fluxes at the snow surface in a prairie environment.

Maic, D.H., et al, Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.101-124, 60 refs.

Granger, R.J.

Mass transfer, Solar radiation, Albedo, Snowmelt, Heat transfer, Plains.

34-1012

Energy budget of a snow cover.

McKay, D.C., Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.125-134, 21 refs.

Heat transfer, Heat balance, Snow physics, Radiation.

34-1013

Ablation of an isolated snowdrift.

Zuzel, J.F., et al, Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.135-143, 5 refs.

Cox, L.M.

Snowdrifts, Ablation, Models.

34-1014

Solar radiation model for a snow surface in mountainous terrain.

Dozier, J., Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.144-153, 32 refs.

Snowmelt, Models, Solar radiation, Heat transfer, Snow air interface.

34-1015

Interactions between the atmospheric boundary layer and a snow surface.

Halberstam, I.M., et al, Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.154-166, 13 refs.

Schildge, J.P.

Heat transfer, Turbulent exchange, Snow air interface, Turbulent boundary layer, Moisture, Meteorological data, Boundary value problems, Models.

34-1016

Atmospheric radiation model for general alpine application.

Marks, D., Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.167-178, 16 refs.

Solar radiation, Remote sensing, Radiometry, Snowmelt, Models.

34-1017

Review of snow melt in the mountain environment.

Obled, C., et al, Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.179-204, 58 refs.

Harder, H.

Mountains, Snow melting, Runoff, Models.

34-1018

Optimal complexity of a point snowmelt model.

Kuusisto, E., Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.205-210, 1 ref.

Snowmelt, Models.

34-1019

Energy balance and snowmelt in a deciduous forest.

Hendrie, L.K., et al, Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.211-221, 27 refs.

Price, A.G.

Heat balance, Snowmelt, Forest land, Meteorological data, Models.

34-1020

Review of water movement in snow.

Wankiewicz, A., Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.222-252a, 73 refs.

Snow permeability, Water flow, Snowmelt, Runoff, Models, Snow water content.

34-1021

Some experimental data on water percolation through homogeneous snow.

Denoth, A., et al, Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.253-256, In English with French summary, 6 refs.

Seidenbusch, W., Blumthaler, M., Kirchlechner, P.

Snow permeability, Water flow, Snow water content.

34-1022

Controls on the production of snowmelt runoff.

Price, A.G., et al, Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.257-268, 48 refs.

Hendrie, L.K., Dunne, T.

Snowmelt, Runoff forecasting, Models, Water flow.

34-1023

European hydrological system snow routine.

Morris, E.M., et al, Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.269-278, 10 refs.

Godfrey, J.

Snowmelt, Runoff, Snow temperature, Water flow, Models, Heat transfer, Boundary value problems.

34-1024

Measured thermal regime within a snow cover just before the onset of melt.

Granberg, H.B., Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.279-287, 9 refs.

Snow temperature, Snow melting.

34-1025

Study of snowmelt-runoff components using isotope measurements.

Herrmann, A., et al, Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.288-296, 12 refs.

Martinez, J., Stichler, W.

Snowmelt, Runoff, Isotope analysis.

34-1026

Review of snow-soil interaction.

Guymon, G.L., Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.297-303, 39 refs.

Boundary value problems, Soil temperature, Soil water migration, Snow water content, Frozen ground.

34-1027

Analysis of coupled heat and moisture flow in an unsaturated soil.

O'Neill, K., MP 1259, Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.304-309, 25 refs.

Soil water migration, Heat transfer.

This paper presents a set of partial differential equations that describes the concurrent one-dimensional flow of liquid and heat in unfrozen unsaturated soils. A Galerkin finite element method based on hermite polynomials was used to solve the equations numerically. To verify both the theory and the solution method, laboratory measurements were made on a horizontal soil column. The results furnished essential transport coefficient values, as well as data records over space and time for infiltrations of cold water that produced steep, interacting temperature and moisture content gradients. Comparison of measured and predicted values showed very good agreement in both the moisture and temperature domains. Contrary to the usual assumption in soil studies, liquid convection played a large role in the heat transfer. A simple geometric mean formula represented the soil thermal conductivity quite adequately.

34-1028

Snow soil interactions in interior Alaska.

Santeford, H.S., Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.311-318, 3 refs.

Snow surveys, Mosses, Water flow, Vapor barriers.

34-1029

Is the soil frozen or not—an algorithm using weather records.

Cary, J.W., et al. Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.319-327, 13 refs.  
Campbell, G.S., Papendick, R.I.  
Ground ice, Frozen ground physics, Heat transfer, Meteorological data.

34-1030

Upward migration of moisture and heaving in frozen soils.

Morel-Seytoux, H.J., Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.328-335, 23 refs.  
Soil water migration, Frost heave, Ice formation, Layers, Models.

34-1031

Streamflow simulation models for use on snow covered watersheds.

Anderson, E.A., Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.336-350, 37 refs.  
Stream flow, Models, Snow water equivalent.

34-1032

Procedure to incorporate snow course data into the National Weather Service river forecast system.

Carroll, T.R., Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.351-358, 6 refs.  
Snow surveys, Snow water equivalent, River flow, Forecasting, Models.

34-1033

Interactive model of snowpack accumulation and melt dynamics in forested conditions.

Ffolliott, P.F., et al. Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.359-368, 11 refs.  
Rasmussen, W.O.  
Snow accumulation, Snow melting, Forests, Models.

34-1034

Development of the operational snow band SSARR model.

Speers, D., et al. Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.369-378, 6 refs.  
Kuehl, D., Schermerhorn, V.  
Snow accumulation, Ablation, Rain, Runoff, Models.

34-1035

Mountain watershed simulation model.

Leavesley, G.H., et al. Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.379-386, 12 refs.  
Striffler, W.D.  
Snow hydrology, Models, Stream flow, Solar radiation, Air temperature, Precipitation (meteorology).

34-1036

Review of the operational experience with the SSARR model.

Rockwood, D.M., Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.387-396, 7 refs.  
Hydrology, Models, Snowfall, Rain, Reservoirs.

34-1037

Spring flood forecasting by conceptual models in Sweden.

Bergström, S., Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.397-405, 2 refs.  
Flood forecasting, Models, Sweden.

34-1038

Use of integrated hydrological models with distributed snow cover description for hydrological forecasting in Norway.

Saelthun, N.R., Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.406-413, 9 refs.  
Hydrology, Forecasting, Models, Snow cover distribution.

34-1039

Model to predict short-term snowmelt runoff using synoptic observations of streamflow, temperature and precipitation.

Tangborn, W.V., Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.414-426, 8 refs.  
Snowmelt, Runoff, Forecasting, Models.

34-1040

Applications of the SCS basin simulation model.

Woodward, D.E., et al. Meeting on Modeling of Snow Cover Runoff, 26-28 September 1978, Hanover, New Hampshire. Proceedings, edited by S.C. Colbeck and M. Ray, U.S. Army Cold Regions Research and Engineering Laboratory, 1979, p.427-432, 5 refs.  
Walker, C.H.  
Hydrology, Water balance, Models, Water flow, Reservoirs.

34-1041

Laser reflectivity measurements of snow/ice covered targets in the Arctic region.

Schneider, R.W., U.S. Arsenal, Redstone, Alabama. Redstone Arsenal technical report, Mar. 1979, DRDMI-T-75-45, 40p., ADB-040 487L, Distribution limited to U.S. Government agencies only.  
Snow cover, Ice cover, Reflectivity, Lasers.

34-1042

Ice seal for rotating shafts.

Harbage, A.B., Jr., U.S. Naval Ship Research and Development Center. Report, Oct. 1979, DTNSRDC-79/085, 35p. ADA-076 308.  
Sealing, Ice (construction material), Ice formation, Shafts (machine elements).

34-1043

Phosphonitrilic fluoroelastomer coated fabrics for collapsible fuel storage tanks.

Sicka, R.W., et al. Akron, Ohio, Firestone Tire and Rubber Co., 1979, 172p. ADA-074 824.  
Mitchell, G.B.  
Polymers, Protective coatings, Storage tanks, Fuels, Low temperature tests.

34-1044

Arctic lead-airstrip data buoy.

Buck, B.M., et al. Polar Research Laboratory, Inc., Santa Barbara. Technical report, July 1979, PRL-TR-8, 22p. ADA-074 731.  
Burke, S.P., Anderson, J.O.  
Remote sensing, Subglacial observations, Sea ice, Polynyas, Airborne equipment.

34-1045

Portable data collection winch without slip rings for Arctic use.

Richards, D., Exposure: a newsletter for ocean technologists, July 1979, 7(3), p.1-3. ADA-073 329.  
Portable equipment, Oceanography.

34-1046

Basis for forecasting the Arctic sea ice over a few months to many years.

Lamb, H.H., East Anglia. University (Norwich, England). Climatic Research Unit. Annual report, Jan. 1979, No.1, 84p. ADA-074 720.  
Long range forecasting, Ice forecasting, Atmospheric pressure, Ocean currents, Sea ice.

34-1047

Winter and spring oceanographic conditions in and under the ice of the Bering Sea.

Lohrman, W.R., et al. Monterey, California, U.S. Navy Postgraduate School, 1979, 66p., ADA-073 582, M.Sc. thesis.

Paquette, R.G., Bourke, R.H.

Water temperature, Water structure, Salinity, Sea ice, Seasonal variations.

34-1048

Study of ambient noise levels in the marginal-sea-ice zone east of Greenland.

Peters, K.W., Monterey, California, U.S. Naval Postgraduate School, 1979, 162p., M.Sc. thesis.  
Sea ice, Ice acoustics, Floating ice, Noise (sound).

34-1049

Proceedings of the 47th annual meeting.

Western Snow Conference, Ft. Collins, Colorado: State University, 1979, 118p., For selected individual papers see 34-1050 through 34-1057.

Meetings, Snow hydrology, Stream flow, Runoff forecasting, Measurement.

34-1050

Hydrochemical separation of components of discharge in alpine catchments.

Collins, D.N., et al. Western Snow Conference. Proceedings, Apr. 1979, 47th, p.1-9, 23 refs.  
Young, G.J.  
Snowmelt, Water chemistry, Electrical resistivity.

34-1051

Snow blowing and snow fall on the North Slope, Alaska.

Wendler, G., Western Snow Conference. Proceedings, Apr. 1979, 47th, p.10-19, 15 refs.  
Snowfall, Blowing snow, Wind (meteorology), Climatology.

34-1052

Microwave measurements of snow stratigraphy and water equivalence.

Boyne, H.S., et al. Western Snow Conference. Proceedings, Apr. 1979, 47th, p.20-26, 2 refs.  
Ellerbruch, D.A.  
Snow stratigraphy, Snow water equivalent, Electromagnetic prospecting, Snow depth, Dielectric properties.

34-1053

Application of meteor burst telemetry to snow hydrology.

Burroughs, H.F., et al. Western Snow Conference. Proceedings, Apr. 1979, 47th, p.27-37, 3 refs.  
Patterson, P.E.  
Snow hydrology, Telemetering equipment, Data transmission.

34-1054

Volume forecasts using the SSARR model in a zone mode.

Kuehl, D.W., Western Snow Conference. Proceedings, Apr. 1979, 47th, p.38-47, 24 refs.  
Runoff forecasting, Snow accumulation, Ablation, Models, Snow courses, Air temperature, Precipitation (meteorology).

34-1055

Evaluation of streamflow forecasting methods.

Lettenmaier, D.P., et al. Western Snow Conference. Proceedings, Apr. 1979, 47th, p.48-55, 5 refs.  
Garen, D.C.  
Stream flow, Runoff forecasting, Models, Performance.

34-1056

Application of snow covered area to runoff forecasting in the southern Sierra Nevada.

Hannaford, J.F., et al. Western Snow Conference. Proceedings, Apr. 1979, 47th, p.56-67, 10 refs.  
Hall, R.L., Brown, A.J.  
Runoff forecasting, Snowmelt, Snow cover distribution.

34-1057

Mean and extreme semi-monthly northwestern hemispheric snow boundaries from satellite records (1966-1979) and some surface data comparisons.

Berry, M.O., et al. Western Snow Conference. Proceedings, Apr. 1979, 47th, p.68-79, 4 refs.  
Scholefield, P.R.  
Snow cover distribution, Spaceborne photography, Climatology.

34-1058

Soils and the productivity of plant communities. Vol.4. (Pochvy i produktivnost' rastitel'nykh soobshchestv. Vyp.4).

Kovda, V.A., ed. Moscow, Universitet, 1979, 205p., In Russian. For selected papers see 34-1059 through 34-1066. Refs. passim.

Tundra, Patterned ground.

34-1059

Structure of moss synusiae in the spotty tundra of the Agapa research station. (Struktura mokhovoi sinuzii ptiatnistol tundry stantsionara Agapa).

Tishkov, A.A., Pochvy i produktivnost' rastitel'nykh soobshchestv. Vyp.4 (Soils and the productivity of plant communities. Vol.4) edited by V.A. Kovda, Moscow, Universitet, 1979, p.5-14, In Russian. 14 refs.

Tundra, Patterned ground.

- 34-1060**  
Fall off and litter of coniferous forests in Valday. [Opad i podstika khvoynykh lesov Valdaia]. Grishina, L.A., et al. Pochvy i produktivnost' rastitel'nykh soobshchestv. Vyp.4 (Soils and the productivity of plant communities. Vol.4) edited by V.A. Kovda, Moscow, Universitet, 1979, p.15-50, In Russian. 13 refs.  
Vladychenskii, A.S.  
Forest soils, Litter, Soil formation, Podsol, Soil profiles, Soil chemistry, Landscape types, Vegetation, Biomass.
- 34-1061**  
Fractional composition of humic acids in Valday pine forest soils. [Fraktsionnyi sostav gumusovykh kislot pochv khvoynykh lesov Valdaia]. Grishina, L.A., et al. Pochvy i produktivnost' rastitel'nykh soobshchestv. Vyp.4 (Soils and the productivity of plant communities. Vol.4) edited by V.A. Kovda, Moscow, Universitet, 1979, p.51-62, In Russian. 27 refs.  
Vladychenskii, A.S.  
Forest soils, Litter, Soil formation, Podsol, Soil chemistry, Soil profiles, Landscape types.
- 34-1062**  
Properties of humic acids in the Valday research station soils. [Nekotorye svoystva gumusovykh kislot pochv Valdaiskogo stantsionara]. Grishina, L.A., et al. Pochvy i produktivnost' rastitel'nykh soobshchestv. Vyp.4 (Soils and the productivity of plant communities. Vol.4) edited by V.A. Kovda, Moscow, Universitet, 1979, p.63-87, In Russian. 17 refs.  
Borodaenko, N.N.  
Forest soils, Litter, Biomass, Soil formation, Soil composition, Soil profiles.
- 34-1063**  
Microelements in the lower layer of Valday station spruce forest. [Mikroelementy v rasteniakh nizhnego iarusa el'nika-kislichnika Valdaiskogo stantsionara]. Belitsyna, G.D., et al. Pochvy i produktivnost' rastitel'nykh soobshchestv. Vyp.4 (Soils and the productivity of plant communities. Vol.4) edited by V.A. Kovda, Moscow, Universitet, 1979, p.87-92, In Russian. 5 refs.  
Epishina, L.V.  
Forest soils, Biomass, Litter, Vegetation, Peat, Soil formation, Podsol, Soil chemistry.
- 34-1064**  
Microorganism dynamics in spruce forest soils. [Dinamika aktivnykh form mikroorganizmov v pochve el'nika-kislichnika]. Skvortsova, I.N., Pochvy i produktivnost' rastitel'nykh soobshchestv. Vyp.4 (Soils and the productivity of plant communities. Vol.4) edited by V.A. Kovda, Moscow, Universitet, 1979, p.93-99, In Russian. 7 refs.  
Forest soils, Vegetation, Litter, Soil chemistry, Soil microbiology, Soil composition, Snow cover effect.
- 34-1065**  
Manganese oxidizing bacteria in the Valday station soils. [Manganetsokislaiushchie mikroorganizmy v pochvakh Valdaiskogo stantsionara]. Bolotina, I.N., Pochvy i produktivnost' rastitel'nykh soobshchestv. Vyp.4 (Soils and the productivity of plant communities. Vol.4) edited by V.A. Kovda, Moscow, Universitet, 1979, p.100-107, In Russian. 17 refs.  
Forest soils, Podsol, Vegetation, Litter, Soil microbiology, Soil chemistry.
- 34-1066**  
List of publications based on materials from the Agapa Taymyr research station. [Spisok publikatsii po materialam sobrannym na Taymyrskom stantsionare "Agapa"]. Pochvy i produktivnost' rastitel'nykh soobshchestv. Vyp.4 (Soils and the productivity of plant communities. Vol.4) edited by V.A. Kovda, Moscow, Universitet, 1979, p.203-206, In Russian. 61 refs.  
Tundra, Research projects, Bibliographies, USSR—Taymyr Peninsula.
- 34-1067**  
History of river valley development and land reclamation problems in Siberia and the Far East. [Istoriia razvitiia rechnykh dolin i problemy melioratsii zemel'. Sibir' i Dal'nii Vostok]. Florensov, N.A., ed. Novosibirsk, Nauka, 1979, 215p., In Russian. For selected papers see 34-1068 through 34-1075. Refs. passim.  
Nikolaev, V.A., ed.  
River basins, Valleys, Saline soils, Swamps, Drainage, Land reclamation, Irrigation, Engineering geology, Spaceborne photography, Aerial surveys, Photointerpretation, Landscape types, Alpine tundra, Forest tundra, Taiga.
- 34-1068**  
History of river valley development as a basis for designing land irrigation with ground water in Buryat-Mongol ASSR. [Istoriia razvitiia rechnykh dolin Buriatii kak osnova dlia prognoza irrigatsii zemel' podzemnymi vodami]. Bazarov, D.B., et al. Istoriia razvitiia rechnykh dolin i problemy melioratsii zemel'. Sibir' i Dal'nii Vostok (History of river valley development and land reclamation problems in Siberia and the Far East) edited by N.A. Florensov and V.A. Nikolaev, Novosibirsk, Nauka, 1979, p.62-66, In Russian. 3 refs.  
Borisenko, I.M., Tulokhonov, A.K.  
River basins, Valleys, Saline soils, Swamps, Land reclamation, Irrigation, Discontinuous permafrost.
- 34-1069**  
Recent tectonics and river valleys in the Il'm, Ust'-Kutsk and Katanga areas in relation to land reclamation problems. [Novel'shaia tektonika i rechnye doliny v Il'mskom, Ust'-Kutskom i Katangskom raiionakh v svyazi s problemoi melioratsii]. Zveder, L.N., Istoriia razvitiia rechnykh dolin i problemy melioratsii zemel'. Sibir' i Dal'nii Vostok (History of river valley development and land reclamation problems in Siberia and the Far East) edited by N.A. Florensov and V.A. Nikolaev, Novosibirsk, Nauka, 1979, p.71-75, In Russian.  
River basins, Valleys, Geologic structures, Quaternary deposits, Swamps, Land reclamation, Engineering geology, Economic development.
- 34-1070**  
Antecedent and recent stream pattern of the Amur-Zeya Plain from spaceborne photography. [Formirovanie prerek i sovremennoi rechnoi seti Amuro-Zeiskoi ravniny po dannym deshifirovaniia kosmicheskikh snimkov]. Muzis, A.I., Istoriia razvitiia rechnykh dolin i problemy melioratsii zemel'. Sibir' i Dal'nii Vostok (History of river valley development and land reclamation problems in Siberia and the Far East) edited by N.A. Florensov and V.A. Nikolaev, Novosibirsk, Nauka, 1979, p.75-80, In Russian. 10 refs.  
Electric power, Spaceborne photography, Engineering geology, Baykal Amur railroad, Permafrost beneath structures, USSR—Zeya River.
- 34-1071**  
Modeling lake landscapes of the Selenga River delta, its dynamics and development. [Modelirovanie prirody ozernogo kraia Selenginskoi del'ty, ee dinamika i prognoz razvitiia]. Bogoiavlenskii, B.A., Istoriia razvitiia rechnykh dolin i problemy melioratsii zemel'. Sibir' i Dal'nii Vostok (History of river valley development and land reclamation problems in Siberia and the Far East) edited by N.A. Florensov and V.A. Nikolaev, Novosibirsk, Nauka, 1979, p.105-128, In Russian. 29 refs.  
Deltas, Models, Land reclamation, Aerial surveys, Photography, Geobotanical interpretation, Landscape types, Water pollution, USSR—Baykal Lake, USSR—Selenga River.
- 34-1072**  
Revealing stream pattern indices by spaceborne photography. [Ispol'zovanie kosmicheskikh televizionnykh snimkov dlia vyavleniia indikatsionnykh osobennostei gidrosetei]. Miliaveva, L.S., Istoriia razvitiia rechnykh dolin i problemy melioratsii zemel'. Sibir' i Dal'nii Vostok (History of river valley development and land reclamation problems in Siberia and the Far East) edited by N.A. Florensov and V.A. Nikolaev, Novosibirsk, Nauka, 1979, p.129-134, In Russian. 12 refs.  
Spaceborne photography, Streams, Alpine tundra, Forest tundra, Taiga.
- 34-1073**  
Chonkemin Valley terraces and the glaciation of northern Tien Shan. [O terrasakh doliny Chonkamina i oledeneniakh severnogo Tian'-Shania]. Bylinskaiia, L.N., Istoriia razvitiia rechnykh dolin i problemy melioratsii zemel'. Sibir' i Dal'nii Vostok (History of river valley development and land reclamation problems in Siberia and the Far East) edited by N.A. Florensov and V.A. Nikolaev, Novosibirsk, Nauka, 1979, p.137-143, In Russian. 8 refs.  
Glaciation, Glacial deposits, Moraines, Ground ice, Terraces, Land reclamation, Engineering geology, USSR—Tien Shan.
- 34-1074**  
Combined aerial survey of northwestern Siberia. [Komblesnoe aerovizual'noe obsledovanie severa Zapadnoi Sibiri]. Bogoiavlenskii, B.A., et al. Istoriia razvitiia rechnykh dolin i problemy melioratsii zemel'. Sibir' i Dal'nii Vostok (History of river valley development and land reclamation problems in Siberia and the Far East) edited by N.A. Florensov and V.A. Nikolaev, Novosibirsk, Nauka, 1979, p.169-192, In Russian. 28 refs.  
Aerial surveys, Geomorphology, Landscape types, Mapping, Cryogenic soils, Swamps, Permafrost distribution, Land reclamation.
- 34-1075**  
Problems and results of studying the relief of Siberia and the Far East. [Itogi, zadachi i problemy izucheniia rel'efa Sibiri i Dal'nego Vostoka]. Nikolaev, V.A., Istoriia razvitiia rechnykh dolin i problemy melioratsii zemel'. Sibir' i Dal'nii Vostok (History of river valley development and land reclamation problems in Siberia and the Far East) edited by N.A. Florensov and V.A. Nikolaev, Novosibirsk, Nauka, 1979, p.192-206, In Russian. 3 refs.  
Geomorphology, Land reclamation, Engineering geology, Landscape types, Cryogenic soils, Permafrost, Economic development.
- 34-1076**  
Differences in the formation of spring runoff in forests of the European USSR. [Razlichia v formirovanii vesennego stoka v lesnoi zone ETS]. Krestovskii, O.I., et al. Leningrad. Gosudarstvennyi gidrologicheskii institut. Trudy, 1979, Vol.259, p.3-14, In Russian. 20 refs.  
Deribizova, S.B., Khat'kova, N.P.  
Forest land, Runoff, Meltwater, Snow cover distribution, Snow depth, Snow water equivalent, Charts.
- 34-1077**  
Forecasting spring water inflow into the Kama reservoir allowing for rainfall. [Prognoz vesennego pritoka vody v Kamskoe vodokhranilishche s ucheto dozhdevoi sostavliaiushchei]. Liapunova, I.B., et al. Leningrad. Gosudarstvennyi gidrologicheskii institut. Trudy, 1979, Vol.259, p.15-25, In Russian. 6 refs.  
Osadchaia, N.N., Savina, L.K.  
Reservoirs, Meltwater, Flooding, Rain, Snow water equivalent, Water reserves, Analysis (mathematics), USSR—Kama River.
- 34-1078**  
Spring runoff from small drainage basins of the Dubovskaya hydrometeorological station. [Usloviia formirovaniia vesennego stoka s mal'nykh vodoshorov Dubovskoi vodnobilansovoi stantsii]. Bystrov, A.V., Leningrad. Gosudarstvennyi gidrologicheskii institut. Trudy, 1979, Vol.259, p.26-38, In Russian. 11 refs.  
River basins, Drainage, Meltwater, Runoff, Snow cover distribution, Snow depth, Snow water equivalent, Soil freezing, Frost penetration, Ground ice.
- 34-1079**  
Distribution of snow cover water reserves in the northeast European USSR. [Raspredelenie zapasov vody v snezhnom pokrove v severo-vostochnykh raiionakh ETS]. Vershinina, L.K., et al. Leningrad. Gosudarstvennyi gidrologicheskii institut. Trudy, 1979, Vol.259, p.58-67, In Russian. 5 refs.  
Volchenko, V.N.  
Forest land, Snow cover distribution, Snow depth, Snow water equivalent, Charts.

34-1080

**Aerial gamma surveys for determining snow water reserves with unstable snow cover.** [Otsenka vozmozhnostei opredeleniia zapasov vody v snege samoletnym gamma-metodom v ralonakh s neustoiichivym zaleganiem snezhnogo pokrova].

Vershina, L.K., Leningrad. Gosudarstvennyi gidrologicheskii institut. Trudy, 1979, Vol.259, p.68-74. In Russian. 5 refs.

**Aerial surveys, Gamma irradiation, Snow cover distribution, Snow water equivalent.**

34-1081

**Meltwater losses in forests due to absorption by tree bark.** [Poteri tal'nykh vod v lesu na uvlazhnenie drevessiny].

Krestovskii, O.I., et al, Leningrad. Gosudarstvennyi gidrologicheskii institut. Trudy, 1979, Vol.259, p.87-91. In Russian. 2 refs.

IAstrebkov, I.K.

**Forestry, Trees (plants), Roots, Meltwater, Transpiration, Water reserves, Water loss.**

34-1082

**Errors in determining snow cover characteristics in the northeast European USSR.** [Otsenka pogreshnostei opredeleniia kharakteristik snezhnogo pokrova v severo-vostochnykh ralonakh ETS].

Vershina, L.K., et al, Leningrad. Gosudarstvennyi gidrologicheskii institut. Trudy, 1979, Vol.259, p.113-121. In Russian. 3 refs.

Belova, L.B.

**Snow surveys, Snow cover distribution, Snow water equivalent, Snow depth, Snow density, Statistical analysis, Accuracy.**

34-1083

**Accuracy of determining soil freezing depth at observation points.** [Otsenka oshibki opredeleniia glubiny promerzaniia pochvy v punktakh nabludeniia].

Sokolova, N.V., Leningrad. Gosudarstvennyi gidrologicheskii institut. Trudy, 1979, Vol.259, p.122-128. In Russian. 7 refs.

**Soil freezing, Frost penetration, Frozen ground, Permeability, Meltwater, Runoff, Water loss.**

34-1084

**Accuracy of interpolation and averaging of soil moisture content over an area.** [Otsenka oshibok interpolatsii i osredneniia po ploshchadi zapasov vlagi v pochve].

Vershina, L.K., et al, Leningrad. Gosudarstvennyi gidrologicheskii institut. Trudy, 1979, Vol.259, p.129-141. In Russian. 7 refs.

Leonova, N.E.

**Snow surveys, Soil water.**

34-1085

**Infiltration into soil with precipitation of arbitrary intensity.** [Model' infil'tratsii vody v pochvu pri osadkakh proizvol'noi intensivnosti].

Kutuzova, G.B., Leningrad. Gosudarstvennyi gidrologicheskii institut. Trudy, 1979, Vol.259, p.142-148. In Russian. 4 refs.

**Precipitation (meteorology), Seepage, Ground water, Water transport, Soil profiles, Mathematical models.**

34-1086

**Meteorological conditions for the formation of glaze-hoarfrost deposits in the lower 500-meter layer of the atmosphere.** [Meteorologicheskie uslovia formirovaniia gololeдно-izmorozevykh otlozhenii v nizhnem 500-metrovom sloe atmosfery].

Degtiarev, A.D., et al, Tsentral'naia vyssotnaia gidrometeorologicheskaya observatoriia. Trudy, 1979, Vol.13, p.27-34. In Russian. 5 refs.

Klinov, F.I.A.

**Icing, Hoarfrost, Icing rate, Structures, Ice loads, Meteorological data.**

34-1087

**Nonstationary turbulent wind flow past tall structures.** [Nestatsionarnoe obtekanie vyssotnykh sooruzhenii turbulentnym vetrovym potokom].

Gusev, M.A., Tsentral'naia vyssotnaia gidrometeorologicheskaya observatoriia. Trudy, 1979, Vol.13, p.51-55. In Russian. 5 refs.

**Towers, Wind (meteorology), Turbulent flow, Models, Wind velocity, Stresses, Analysis (mathematics).**

34-1088

**Comment and reply on "Late Quaternary extent of the West Antarctic ice sheet: new evidence from Ross Sea cores".**

Fillon, R.H., et al, Geology, Nov. 1979, 7(11), p.518-519, 17 refs.

**Ice sheets, Grounded ice, Glacial geology, Antarctica—Ross Sea.**

R. Fillon disagrees with the conclusions of Kellogg and others (1979: 33-3970 or E-21853) pertaining to the late Cenozoic

history of the Ross Sea. Three principal areas of disagreement are noted: the biostratigraphic significance of *Globocassidulina* biura, the origin of the sandy unit, and the nature of Late Pleistocene sedimentation. Kellogg et al hold that the concept of grounded ice filling the Ross Sea embayment, even during the last glaciation, is fundamental in interpreting the glacial history of Antarctica.

34-1089

**Keewatin ice sheet—reevaluation of the traditional concept of the Laurentide Ice Sheet.**

Shilts, W.W., et al, Geology, Nov. 1979, 7(11), p.537-541, 29 refs.

Cunningham, C.M., Kaszycki, C.A.

**Ice sheets, Glacial geology, Geologic structures, Ice models, Drift.**

34-1090

**Climatic and synoptic study of the Weddell Sea region during the austral fall months.**

Komro, F.G., Madison, University of Wisconsin, 1978, 46p., Unpublished Master's thesis. 20 refs.

**Sea ice distribution, Ice conditions, Pack ice, Wind (meteorology), Climate.**

This study focuses on two main topics: the climatic conditions of the Weddell Sea during the austral fall months, and an analysis of the cyclone whose windfield indirectly trapped the *General San Martin* on Feb. 26, 1975. The evidence indicates that in addition to the residence time of cyclones and the frequency of their appearance over the central Weddell Sea, other factors, such as the polar easterlies, the damping up effect along the Peninsula, and katabatic winds must significantly account for much of the observed windfield within this region.

34-1091

**Antarctic journal of the United States, Vol. 14, No.3. U.S. National Science Foundation, Washington, D.C., Sep. 1979, 23p.**

**Ice sheets, Sea ice, Glaciology, Ice shelves.**

This issue contains highlights of the 1979-80 U.S. Antarctic Research Program, planned field projects for 1979-80, planned major field camps, NSF funds awards for Apr. 1-June 30, 1979, monthly climate summary corrections, and special news announcements.

Research highlights include geological studies of the Ellsworth Mountains and an investigation of wave-particle interactions in the magnetosphere from Siple Station. Approximately 80 science projects are planned for the coming season. Brief descriptions are given of research projects.

A major field camp will be established in the Ellsworth Mountains to support geological investigations of the area. During 1980-81 a major field camp will be installed at site D-59 on the East Antarctic Ice Sheet to recover an LC-130 airplane that crashed at the site in 1971.

34-1092

**Hydrochemical regime of the Arctic Ocean.** [Gidrokhimicheskii rezhim Severnogo Ledovitogo okeana].

Rusanov, V.P., et al, Leningrad, Gidrometeoizdat, 1979, 144p., In Russian. 86 refs.

IAkovlev, N.I., Bunevich, A.G.

**Drift stations, Water transport, Water chemistry, Brines, Chemical composition, Arctic Ocean.**

34-1093

**Dynamics of natural processes in highlands.** [Dinamika prirodnikh protsessov gornyykh stran].

Maksimov, E.V., ed, Leningrad, 1977, 131p., In Russian. For selected papers see 34-1094 through 34-1098. Refs. passim.

DLC GB501.2.D56

**Rock glaciers, Mountain glaciers, Alpine landscapes, Aerial surveys, Glacial hydrology, Buried ice, Dead glaciers.**

34-1094

**Relation between orography and recent glaciation of Zailiyskiy Alatau.** [Sovremennoe oledenenie Zailiyskogo Alatau i ego svyaz' s orografiy].

Vilesov, E.N., Dinamika prirodnikh protsessov gornyykh stran (Dynamics of natural processes in highlands) edited by E.V. Maksimov, Leningrad, 1977, p.60-76. In Russian. 9 refs.

DLC GB501.2.D56

**Mountain glaciers, Aerial surveys, Glacier ice, Ice volume, Slope orientation, Snow cover distribution, Snow line, USSR—Zailiyskiy Alatau.**

34-1095

**Hydraulic regime of glacial rivers and the controlling role of glaciers.** [Vodnyy rezhim lednikovyykh rek i reguliruyushchaya rol' lednikov].

Sokolov, D.P., Dinamika prirodnikh protsessov gornyykh stran (Dynamics of natural processes in highlands) edited by E.V. Maksimov, Leningrad, 1977, p.77-83. In Russian. 6 refs.

DLC GB501.2.D56

**Mountain glaciers, Glacial hydrology, Glacial rivers, Alimentation, Glacier ablation, Precipitation (meteorology).**

history of the Ross Sea. Three principal areas of disagreement are noted: the biostratigraphic significance of *Globocassidulina* biura, the origin of the sandy unit, and the nature of Late Pleistocene sedimentation. Kellogg et al hold that the concept of grounded ice filling the Ross Sea embayment, even during the last glaciation, is fundamental in interpreting the glacial history of Antarctica.

34-1096

**Buried glaciers and their origin.** [Bronirovannye ledniki i ikh proiskhozhdeniye].

Maksimov, E.V., Dinamika prirodnikh protsessov gornyykh stran (Dynamics of natural processes in highlands) edited by E.V. Maksimov, Leningrad, 1977, p.84-92. In Russian. 8 refs.

DLC GB501.2.D56

**Ground ice, Rock streams, Rock glaciers, Buried ice, Dead glaciers, Glacier ice, Moraines.**

34-1097

**Geographic aspects of mountain flora evolution in Central Asia.** [Geograficheskie aspekty evoliutsii rastitel'nogo pokrova gor Srednei Azii].

Agakhanians, O.E., Dinamika prirodnikh protsessov gornyykh stran (Dynamics of natural processes in highlands) edited by E.V. Maksimov, Leningrad, 1977, p.93-108. In Russian. 47 refs.

DLC GB501.2.D56

**Alpine landscapes.**

34-1098

**Cushion plants as indicators of climatic changes in the Central Asian highlands.** [Rastenii podushki kak indikator izmenchivosti klimata v vysokogor'iax Srednei Azii].

Ukhacheva, V.N., Dinamika prirodnikh protsessov gornyykh stran (Dynamics of natural processes in highlands) edited by E.V. Maksimov, Leningrad, 1977, p.109-119. In Russian. 15 refs.

DLC GB501.2.D56

**Alpine landscapes.**

34-1099

**Geography of Siberian resource development.** [Geografiia osvoeniia resursov Sibiri].

Kosmachev, K.P., ed, Novosibirsk, Nauka, 1979, 107p., In Russian. For selected papers see 34-1100 through 34-1102. Refs. passim.

Mikhailov, I.U.P., ed.

**Electric power, Hydraulic structures, Environmental protection, Geocryology, Railroad tracks, Frost heave, Naleds, Snowdrifts, Taiga, Baykal Amur railroad.**

34-1100

**New features in economic development of the Angara River area near Krasnoyarsk in relation to the construction of the Boguchansk hydroelectric power plant.** [Novye cherty v khoziaistvennom osvoenii Krasnoyarskogo Priangaria v svyazi so stroitel'stvom Boguchanskoi GES].

Medvedkova, E.A., Geografiia osvoeniia resursov Sibiri (Geography of Siberian resource development) edited by K.P. Kosmachev and I.U.P. Mikhailov, Novosibirsk, Nauka, 1979, p.19-32. In Russian. 20 refs.

**Hydraulic structures, Electric power, Railroads, USSR—Angara River.**

34-1101

**Interaction between natural and technical systems (railroad track operation taken as an example).** [Opyt otsenki vzaimodel'stviia prirodnikh i tekhnicheskikh sistem (na primere ekspluatatsii zheleznodorozhnykh putel)].

Kaiuchkin, N.P., Geografiia osvoeniia resursov Sibiri (Geography of Siberian resource development) edited by K.P. Kosmachev and I.U.P. Mikhailov, Novosibirsk, Nauka, 1979, p.33-46. In Russian. 4 refs.

**Railroads, Embankments, Railroad tracks, Permafrost beneath structures, Human factors, Environmental protection, Geocryology, Snowdrifts, Frost heave, Naleds.**

34-1102

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34-1206

**Variation of the turbulent exchange on a mountain glacier.**

Davidovich, N.V., et al. Data of glaciological studies. Translated from Akademii nauk SSSR. Institut geografii. Materialy glatsiologicheskikh issledovanii. Khronika obsuzhdeniia, Vol.21, 1973, Washington, D.C., U.S. National Science Foundation, 1974, p.367-379, PB-293 100-T. For Russian original see 29-3859. 5 refs.

Popova, V.S.

**Turbulent exchange, Heat flux, Glacier ablation, Mountain glaciers.**

34-1207

**Electrolytic conductivity of water, snow and ice in the basin of the Kolkha Glacier.**

Fleetwood, A., Data of glaciological studies. Translated from Akademii nauk SSSR. Institut geografii. Materialy glatsiologicheskikh issledovanii. Khronika obsuzhdeniia, Vol.21, 1973, Washington, D.C., U.S. National Science Foundation, 1974, p.387-395, PB-293 100-T. For Russian original see 29-3860. 7 refs.

**Electrical resistivity, Glacier ice, Meltwater, Snow, Glacier surges.**

34-1208

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Psareva, T.V., et al. Data of glaciological studies. Translated from Akademii nauk SSSR. Institut geografii. Materialy glatsiologicheskikh issledovanii. Khronika obsuzhdeniia, Vol.21, 1973, Washington, D.C., U.S. National Science Foundation, 1974, p.396-406, PB-293 100-T. For Russian original see 29-3861. 9 refs.

Surova, T.G.

**Pollen, Mountain glaciers, Snow cover structure, Firn stratification.**

34-1209

**Influence of snow deformation on the traffic of low-powered amphibian airseighs.**

Shoeb, V.V., Data of glaciological studies. Translated from Akademii nauk SSSR. Institut geografii. Materialy glatsiologicheskikh issledovanii. Khronika obsuzhdeniia, Vol.21, 1973, Washington, D.C., U.S. National Science Foundation, 1974, p.429-433, PB-293 100-T. For Russian original see 29-3862. 6 refs.

**Snow deformation, Snow vehicles.**

34-1210

**Results of gravimetric measurements of the ice thickness on the Obruche Glacier.**

Macheret, I.U.A., Data of glaciological studies. Translated from Akademii nauk SSSR. Institut geografii. Materialy glatsiologicheskikh issledovanii. Khronika obsuzhdeniia, Vol.21, 1973, Washington, D.C., U.S. National Science Foundation, 1974, p.434-439, PB-293 100-T. For Russian original see 29-3863. 3 refs.

**Glacier ice, Ice cover thickness, Gravimetric prospecting.**

34-1211

**Variation of isotope O-18 in the mass of the Marukh Glacier (Western Caucasus).**

Bazhev, A.B., et al. Data of glaciological studies. Translated from Akademii nauk SSSR. Institut geografii. Materialy glatsiologicheskikh issledovanii. Khronika obsuzhdeniia, Vol.21, 1973, Washington, D.C., U.S. National Science Foundation, 1974, p.440-454, PB-293 100-T. For Russian original see 29-3864. 15 refs.

Gordienko, F.G., Smirnov, K.E.

**Glacier ice, Isotope analysis, Firn stratification, Glacier thickness.**

34-1212

**Simultaneous investigations of ice, water and heat balance in typical glacial basins.**

Kotliakov, V.M., Data of glaciological studies. Translated from Akademii nauk SSSR. Institut geografii. Materialy glatsiologicheskikh issledovanii. Khronika obsuzhdeniia, Vol.21, 1973, Washington, D.C., U.S. National Science Foundation, 1974, p.463-491, PB-293 100-T. For Russian original see 29-3865. Glacier mass balance, Glacier heat balance.

34-1213

**Role of the internal seepage alimentation in the mass balance of glaciers and methods for determining it.** Bazhev, A.B., Data of glaciological studies. Translated from Akademii nauk SSSR. Institut geografii. Materialy glatsiologicheskikh issledovanii. Khronika obsuzhdeniia, Vol.21, 1973, Washington, D.C., U.S. National Science Foundation, 1974, p.492-521, PB-293 100-T. For Russian original see 29-3866. 11 refs.**Glacier mass balance, Seepage, Measurement, Snow accumulation.**

34-1214

**Annotated list of Soviet literature on glaciology (1969).**

Kotliakov, V.M., comp. Data of glaciological studies. Translated from Akademii nauk SSSR. Institut geografii. Materialy glatsiologicheskikh issledovanii. Khronika obsuzhdeniia, Vol.21, 1973, Washington, D.C., U.S. National Science Foundation, 1974, p.524-692, PB-293 100-T. 444 refs.

Lapina, I.A., comp. Chernova, L.P., comp.

**Bibliographies, Glaciology.**

34-1215

**Thermal rock drill for permafrost.** (Ustroistvo dlia termicheskogo razrusheniia gornyykh porod). Goldaev, I.P., et al. Russia. *Komitet po delam izobretenii i otkrytiy*. Patent, Oct. 12, 1973, 4 col., SOVP-1256888/22-3. For English abstract see Soviet inventions illustrated, Sec.3: Mechanical, Sep. 1973, V(31), No.258-206.**Thermal drills, Rock drilling, Equipment, Permafrost.**

34-1216

**Snow retention heaper and swather.** (Orudie dlia obrazovaniia valkov i kuch pri snegozaderzhanii). Gromov, V.S., Russia. *Komitet po delam izobretenii i otkrytiy*. Patent, Feb. 25, 1974, 4 col., SOVP-1634291/30-15. For English abstract see Soviet inventions illustrated, Sec.3: Mechanical, 1975, W(6), No.416-025.**Snow retention, Equipment.**

34-1217

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34-1218

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Chernov, A.N., Klimov, I.I., Genkin, A.R., Mitus, V.M.

**Thermal insulation, Cellular plastics.**

34-1219

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**Snow removal, Snow vehicles.**

34-1220

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Kozlov, I.N.

**Snow removal, Snow vehicles, Railroad tracks.**

34-1221

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Egozov, V.P., Smirnov, A.A., Kurdenkov, I.B.

**Construction, Winter maintenance, Roadbeds.**

34-1222

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34-1223

**Water area drift ice protection device.** (Ustroistvo dlia zashchity akvatorii ot bitogo drefluishego l'da). Ivarov, L.V., et al. Russia. *Komitet po delam izobretenii i otkrytiy*. Patent, Jan. 25, 1976, 4 col., SOVP-1958779/27-11. For English abstract see Soviet inventions illustrated, Sec.3: Mechanical, Feb. 1977, X(51), No.500-117.

Fedorov, I.P., Andreev, N.D.

**Docks, Drift, Protection, Ice loads, Equipment.**

34-1224

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Ermilin, V.A.

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34-1225

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34-1226

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34-1227

**Ocean 75 record.**

Conference on Engineering in the Ocean Environment, San Diego, Calif., Sep. 22-25, 1975, New York, Institute of Electrical and Electronics Engineers, 1975, 952p., Refs. passim. For selected papers see 34-1228 through 34-1236.

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- 34-1231**  
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- 34-1235**  
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Gas pipelines, Natural gas, Route surveys, Environmental impact, Arctic landscapes, United States—Alaska—Prudhoe Bay.
- 34-1359**  
Analysis of disturbance effects of operations of off-road vehicles on tundra. Radforth, J.R., Canada. Arctic Land Use Research Program [Report], (1973), ALUR 71-72-13, 77p., 3 refs.  
Tracked vehicles, Seismic surveys, Environmental impact, Tundra, Revegetation, Canada—Northwest Territories—Mackenzie River Delta.
- 34-1360**  
Effects of freezing temperatures and frozen ground conditions on enclosed wire in tube response. Miller, C.A., U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi. Miscellaneous publication, Apr. 1979, WES-MP-EL-79-2, 45p., ADA-069 065.  
Air temperature, Frozen ground mechanics, Cold weather tests, Military equipment, Electric equipment.
- 34-1361**  
Traffic tests of expedient airfield construction concepts for possible application in the National Petroleum Reserve, Alaska. Burns, C.D., U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi. Technical report, Mar. 1979, WES-TR-GL-79-2, 138p., ADA-069 581.  
Aircraft landing areas, Airports, Construction, Permafrost bases, Subgrade preparation, Thermal insulation.
- 34-1362**  
Investigation of the two-phase, moving boundary system, with convection at the solid-liquid interface. Nansteel, M.W., Pennsylvania. State University. Applied Research Laboratory. Technical memorandum, Jan. 1979, ARL/PSU/TM-79-32, 145p., ADA-069 624, M.Sc. thesis.  
Heat transfer, Boundary value problems, Liquid solid interfaces, Mathematical models, Ice models.
- 34-1363**  
Fabrication and testing of pressurized rib tents. Steeves, E.C., U.S. Army Natick Research and Development Command. Technical report, Apr. 1979, Natick/TR-79/008, 103p., ADA-069 664, 8 refs.  
Portable shelters, Inflatable structures, Snow loads.
- 34-1364**  
Oceanography of the Grand Banks region of Newfoundland in 1973. Hayes, R.M., et al., U.S. Coast Guard. Oceanographic Unit. Report, Mar. 1978, USCG-373-73, 448p., ADA-070 003.  
Robe, R.Q.  
Oceanography, Icebergs, Ocean currents, Marine meteorology.
- 34-1365**  
Experimental determination of melting rates of ice moving in sea water. Clifford, W.F., et al., Monterey, California, U.S. Naval Postgraduate School, 1979, 220p., ADA-070 367, M.Sc. thesis.  
Ermann, R.J.  
Floating ice, Ice temperature, Water temperature, Turbulent boundary layer, Heat transfer, United States—California—Monterey Bay.
- 34-1366**  
Snowpack optical properties in the infrared. Berger, R.H., U.S. Army Cold Regions Research and Engineering Laboratory. May 1979, CR 79-11, 16p., ADA-071 004.  
Snow optics, Snow density, Light scattering, Reflectivity.  
A theory of the optical properties of snow in the 2-20 microns region of the infrared has been developed. Using this theory, it is possible to predict the absorption and scattering coefficients and the emissivity of snow, as function of the snow parameters of grain size and density, for densities between 0.17 and 0.4 g/cu. cm. The absorption and scattering coefficients are linearly related to the density and inversely related to the average grain size. The emissivity is independent of grain size and exhibits only a weak dependence upon density.
- 34-1367**  
Proceedings. Conference on Assessment of Ecological Impacts of Oil Spills, June 14-17 1978, Keystone, Colorado, Keystone, 1978, 945p., ADA-072 859, For selected papers see 34-1368 through 34-1372. Numerous refs.  
Meetings, Oil spills, Environmental impact, Sea ice.
- 34-1368**  
Oil spill behavior in ice during the 1977 Buzzards Bay oil spill. Deslauriers, P.C., Conference on Assessment of Ecological Impacts of Oil Spills, June 14-17, 1978, Keystone, Colorado, Keystone, 1978, p.197-215, ADA-072 859, 16 refs.  
Oil spills, Ice cover effect, United States—Massachusetts—Buzzards Bay.
- 34-1369**  
Weathering estimations for spilled oil from Bouchard No.65. MacLeod, W.D., et al., Conference on Assessment of Ecological Impacts of Oil Spills, June 14-17, 1978, Keystone, Colorado, Keystone, 1978, p.217-228, ADA-072 859, 8 refs.  
Uyeda, M.Y., Friedman, A.J., Prohaska, P.G.  
Oil spills, Ice composition, Chemical analysis.
- 34-1370**  
Fate and effect of Bunker C oil spilled by the USNS Potomac in Mellville Bay, Greenland, 1977. Petersen, H.K., Conference on Assessment of Ecological Impacts of Oil Spills, June 14-17, 1978, Keystone, Colorado, Keystone, 1978, p.331-343, ADA-072 859, 7 refs.  
Oil spills, Sea ice, Water chemistry, Hydrocarbons, Environmental impact.
- 34-1371**  
Physical aspects of the oil spill from the supertanker "Metula". Hann, R.W., Conference on Assessment of Ecological Impacts of Oil Spills, June 14-17, 1978, Keystone, Colorado, Keystone, 1978, p.354-363, ADA-072 859, 5 refs.  
Oil spills, Environmental impact, Tidal currents.
- 34-1372**  
Assessment of the ecological effects of an oil spill in an offshore subarctic environment. Birchard, E.C., et al., Conference on Assessment of Ecological Impacts of Oil Spills, June 14-17, 1978, Keystone, Colorado, Keystone, 1978, p.835-855, ADA-072 859.  
Conover, S.A.M., Greene, G., Telford, A.S.  
Oil spills, Offshore drilling, Oil recovery, Environmental impact, Environment simulation.
- 34-1373**  
Long-term effects of land application of domestic wastewater: Vineland, New Jersey, rapid infiltration site. Koerner, E.L., et al., U.S. Environmental Protection Agency. Report, Mar. 1979, EPA/600/2-79/072, 183p., PB-297 501.  
Haws, D.A.  
Water treatment, Waste disposal, Irrigation, Seepage, Water chemistry.
- 34-1374**  
History of land application as a treatment alternative. Jewell, W.J., et al., U.S. Environmental Protection Agency. Technical report, Apr. 1979, EPA/430/9-79/012, 97p., PB-298 227.  
Seabrook, B.L.  
Sewage treatment, Water treatment, Water pollution, Land reclamation, Irrigation.
- 34-1375**  
Remote sensing of snow and ice: a review of the research in the United States 1975-1978. Rango, A., U.S. National Aeronautics and Space Administration. Technical memorandum, Feb. 1979, NASA-TM-79713, 35p., N79-23478.  
Remote sensing, Research projects, Sea ice, Snow cover.
- 34-1376**  
Deployment and retrieval of linear hydrophone arrays and seismometers under Arctic ice. Gay, S.M., Jr., et al., Rockville, Maryland, MAR Associates, 1976, 97p., ADA-071 404.  
Nelligan, J.J.  
Underwater acoustics, Subglacial observations, Measuring instruments, Seismic prospecting, Sea ice.
- 34-1377**  
Systems analysis of Arctic fuel dispensing equipment. Rosenfield, D.B., et al., Little (Arthur D.), Inc., Cambridge, Mass. Report, June 1979, ADL-80260-18, 172p., ADA-071 815.  
Gilbert, E.A., III, Howland, J.S.  
Fuels, Equipment, Cold weather performance, Elastomers.

34-1378

Grain density of till: a potential parameter for the study of glacial transport.

Puranen, R., et al. *Finland. Geologinen tutkimuslaitos. Report of investigation*, 1979, No.40, 32p., 9 refs.

Kivckas, L.

Glacial deposits, Minerals, Particle size distribution, Density (mass/volume).

34-1379

Crystal alignments in the fast ice of Arctic Alaska.

Weeks, W.F., et al. *U.S. Army Cold Regions Research and Engineering Laboratory*, Oct. 1979, CR 79-22, 21p., ADA-077 188, 9 refs.

Gow, A.J.

Ice crystal structure, Fast ice, Ice crystal growth, Sea ice, Ocean currents.

Field observations at 60 sites located in the fast or near-fast ice along a 1200-km stretch of the north coast of Alaska between Bering Strait and Barter Island have shown that 95% of the ice samples exhibit striking c-axis alignments within the horizontal plane. Such alignments were usually well developed by the time the ice was 50 cm thick and in some cases when the ice was 20 cm thick. In all cases the degree of preferred orientation increased with depth in the ice. Representative standard deviations around a mean direction in the horizontal plane are commonly less than 10 deg for samples collected near the bottom of the ice. The general patterns of the alignments support a correlation between the preferred c-axis direction and the current direction at the ice/water interface. A comparison between c-axis alignments and spot current measurements made at 42 locations shows that the most frequent current direction coincides with the mean c-axis direction. Such alignments are believed to be the result of geometric selection with the most favored orientation being that in which the ice flow is normal to the (0001) planes of ice that compose the deformed sea ice/sea water interface.

34-1380

Towing ships through ice-clogged channels by warping and keding.

Mellor, M., *U.S. Army Cold Regions Research and Engineering Laboratory*, Sep. 1979, CR 79-21, 21p., ADA-077 801, 6 refs.

Channels (waterways), Ice cover, Ice pressure, Ships, Anchors.

The report studies the question of whether Great Lakes freighters could move effectively through ice-clogged channels with the aid of tows provided by warping or keding systems. Ten operational concepts are outlined, and their advantages and disadvantages are noted. The crushing resistance of floating brash ice is then analyzed. The neutral, active and passive states of stress for laterally confined brash ice are considered, and the resistance to horizontal thrusting by a smooth vertical wall is calculated for cohesionless brash ice, and for ice in which there is finite cohesion between the ice fragments. The thickening of the ice cover in the vicinity of a "pusher" and the formation of pressure ridges are analyzed in order to estimate the amount of pile-up that can occur against a ship hull. The analysis then moves on to consideration of ship resistance by brash ice, taking into account crushing resistance at the bow, tangential friction at the bow, and the hull friction aft of the bow section. Comparisons are made between thrust from the ship's screws and the calculated ice resistance. The next section of the report estimates the force requirements for a warping or keding system in terms of thrust augmentation for existing vessels. Tow cable requirements are given, and estimates are made for cable anchors and for anchorage of underwater structures. The force and power requirements for winches and windlasses are given, the practical problems involved in the pickup or transfer of cables are mentioned, and the report concludes with a brief appraisal. The conclusion is that a simple warping tug system is appropriate for a full-scale experiment, a chain ferry with auxiliary barge seems attractive for an operational system, and a chain ferry plow may be an efficient way to clear ice from channels.

34-1381

Bacterial aerosols from a field source during multiple-sprinkler irrigation: Deer Creek Lake State Park, Ohio.

Bausum, H.T., et al. *U.S. Army Cold Regions Research and Engineering Laboratory*, Sep. 1979, SR 79-32, 64p., ADA-077 632, 18 refs.

Bates, R.E., McKim, H.L., Schumacher, P., Brockett, B., Schaub, S.A.

Water treatment, Waste disposal, Irrigation, Aerosols, Microbiology.

An evaluation of microbiological aerosols resulting from the spray irrigation of wastewater under known atmospheric stability conditions was performed during July and August 1978 at the Deer Creek Lake land treatment system in Ohio. In the experiment, ponded chlorinated wastewater was sprayed onto a 6-acre test area with 96 impact sprinklers representing a multi-source field aerosol distribution system. Approximately 99.9% of the wastewater applied to the 23-hectare test area fell within the area of influence of the sprinkler (about a 20-m diam circle around the sprinkler riser) with only 0.10% of the applied wastewater aerosolized. Indigenous total aerobic bacteria in the wastewater and resultant aerosols were sampled and analyzed. Fluorescent dye studies were also performed to characterize the aerosol cloud without the effects of biological decay. During

all of the aerosol tests continuous on-site meteorological measurements were made and wastewater chemical parameters monitored.

34-1382

Ice nucleation by aerosol particles: experimental studies using a wedge shaped ice thermal diffusion chamber.

Schaller, R.C., et al. *Journal of the atmospheric sciences*, Sep. 1979, 36(9), p.1788-1802, 37 refs.

Fukuta, N.

Freezing nuclei, Ice nuclei, Aerosols, Supersaturation, Thermal diffusion, Nucleating agents.

34-1383

Contemporary sedimentary environments on Baffin Island, N.W.T., Canada: debris slope accumulations.

Church, M., et al. *Arctic and alpine research*, Nov. 1979, 11(4), p.371-402, 45 refs.

Stock, R.F., Ryder, J.M.

Sediment transport, Rock glaciers, Slope processes, Talus, Avalanche deposits, Slope stability, Rock mechanics, Lichens, Canada—Northwest Territories—Baffin Island.

34-1384

Nature and distribution of glaciers, neoglaciation, and rock glaciers, east-central Brooks Range, Alaska.

Ellis, J.M., et al. *Arctic and alpine research*, Nov. 1979, 11(4), p.403-420, 49 refs.

Calkin, P.E.

Glacier mass balance, Moraines, Glacial deposits, Rock glaciers, Glaciation, Climatic factors, United States—Alaska—Brooks Range.

34-1385

Surface movement and lichen-cover studies at the active rock glacier near the Grubengletscher, Wallis, Swiss Alps.

Haerberli, W.H., et al. *Arctic and alpine research*, Nov. 1979, 11(4), p.421-441, 49 refs.

King, L., Flotron, A.

Rock glaciers, Glacier flow, Geomorphology, Lichens, Photogrammetry, Snow cover effect.

34-1386

Energy balance model of potential glacierization of northern Canada.

Williams, L.D., *Arctic and alpine research*, Nov. 1979, 11(4), p.443-456, 69 refs.

Glacier ablation, Glaciation, Snow cover distribution, Climatic changes, Snow line, Models.

34-1387

Variations in snow distribution over Arctic Ocean ice. (Izmenchivost' raspredeleniia snega na I'dakh Severnogo Ledovitogo okeana).

Buzuev, A.I.A., et al. *Meteorologiya i gidrologiya*, Sep. 1979, No.9, p.76-85, In Russian with English summary. 13 refs.

Romanov, I.P., Fediakov, V.E.

Ice cover, Snow cover distribution, Snow depth, Pressure ridges, Snow accumulation, Arctic Ocean.

34-1388

Statistical approach to the study of glacier morphology in the Kamchatka Peninsula. (Statisticheskiy podkhod k izucheniiu morfologii lednikov Kamchatki).

Vinogradov, V.N., et al. *Geograficheskoe obshchestvo SSSR. Izvestiya*, July-Aug. 1979, 111(4), p.325-329, In Russian. 4 refs.

Glazyrin, G.E.

Mountain glaciers, Glacier formation, Ice volume, Glacier ablation, Geomorphology, Classifications, Statistical analysis, USSR—Kamchatka Peninsula.

34-1389

Palynological investigations in Severnaya Zemlya related to spore and pollen transfer in the high altitude Arctic. (Nekotorye rezul'taty palinologicheskikh issledovaniy na arhipelag Severnaya Zemlya v svyazi s voprosom o perenose pyl'tsy i spor v vysokoshirotnol' Arkktike).

Kaluzina, L.V., et al. *Geograficheskoe obshchestvo SSSR. Izvestiya*, July-Aug. 1979, 111(4), p.330-334, In Russian. 5 refs.

Malakhovskii, D.B., Makeev, V.M., Safronova, I.N.

Palynology, USSR—Novaya Zemlya.

34-1390

Regularities governing the distribution of soils and vegetational covers in southern Transbaikalia. (Zakonomernosti raspredeleniya pochvenno-rastitel'nogo pokrova v Iuzhnom Zabaikal'e).

Dmitrieva, E.V., *Geograficheskoe obshchestvo SSSR. Izvestiya*, Sep.-Oct. 1979, 3(5), p.427-432, In Russian. 14 refs.

Cryogenic soils, Soil formation, Alpine landscapes, Taiga, Soil freezing, Frost penetration, USSR—Transbaikalia.

34-1391

Use of hydraulic fills under rigorous climatic conditions.

Shkundin, B.M., et al. *Hydrotechnical construction*, Mar. 1979, No.3, p.227-230, Translated from *Gidrotekhnicheskoe stroitel'stvo*. 10 refs.

Popov, I.U.A.

Hydraulic structures, Earth dams, Hydraulic fill, Cold weather construction.

34-1392

Improving the organization of concrete work performed during construction of the Sayano-Sushenskoe hydroelectric plant.

Zinchenko, N.A., et al. *Hydrotechnical construction*, Feb. 1979, No.2, p.114-120, Translated from *Gidrotekhnicheskoe stroitel'stvo*. 1 ref.

Sadovskii, S.I.

Hydraulic structures, Dams, Concrete structures, Concrete placing, Winter concreting.

34-1393

Calculation of the temperature regime of earth dams by the finite-element method.

Kronik, I.A.A., et al. *Hydrotechnical construction*, Feb. 1979, No.2, p.145-152, Translated from *Gidrotekhnicheskoe stroitel'stvo*. 8 refs.

Demin, I.I.

Earth dams, Thermal regime, Soil freezing, Thermal conductivity, Design.

34-1394

Seasonal freezing effect on hydrogeological conditions of the Chul'man Basin. (O roli sloia sezonnogo promerzaniia porod v formirovaniy gidrogeologicheskikh uslovii Chul'manskoi vpadiny).

Buldovich, S.N., *Moscow. Universitet. Vestnik. Seriya 4 Geologiya*, Sep.-Oct. 1979, No.5, p.60-67, In Russian. 7 refs.

Permafrost distribution, Active layer, Permafrost hydrology, Discontinuous permafrost, Seasonal freeze thaw, Frost penetration, Soil water migration, USSR—Yakutia.

34-1395

Facial characteristics of rock streams in southern Yakutia and northern Transbaikalia. (Fatsial'nye osobennosti kurumov Iuzhnoi i Akutii i Severnogo Zabaikal'ia).

Romanovskii, N.N., et al. *Moscow. Universitet. Vestnik. Seriya 4 Geologiya*, July-Aug. 1979, No.4, p.59-73, In Russian. 15 refs.

Tiurin, A.I.

Rock streams, Geocryology, Slope processes, Solifluction, Frost shattering.

34-1396

Calculating resistance to tracked vehicle movement on weak grounds. (Metodika otsenki soprotivleniya dvizheniiu gusenichnykh lesnykh mashin po slabym gruntam).

Kostogryz, S.G., *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestia vysshikh uchebnykh zavedenii. Lesnoi zhurnal*, 1979, No.4, p.42-46, In Russian. 3 refs.

Tracked vehicles, Soil trafficability, Weak soils.

34-1397

Contrast of electromagnetic characteristics at the marine ice-water boundary.

Bogorodskii, V.V., et al. *U.S. Army Cold Regions Research and Engineering Laboratory*, Jan. 1979, TL 706, 6p., ADB-033 797L, 4 refs. Translation from *Zhurnal tekhnicheskoi fiziki*, 44(4):835-838, 1974. For another translation see 32-1272.

Tripol'nikov, V.P.

Ice water interface, Electromagnetic properties, Ice cover thickness, Radar echoes.

Experimental data are cited which define the electromagnetic contrast of a marine ice-water boundary. The study was conducted on pack and year-old ice at drift station SP-19, using video pulses of varying length and radio pulses with a charge frequency of 200 MHz.

34-1398

Pipelines in adverse environments; a state of the art, Vol.2.

American Society of Civil Engineers Pipeline Division Specialty Conference, New Orleans, Louisiana, Jan. 15-17, 1979, New York, N.Y., American Society of Civil Engineers, 1979, p.395-548, For selected papers see 34-1399 through 34-1403. For Vol.1 see 33-2070 through 33-2080.

Pipelines, Cold weather construction, Pipe laying, Hydraulic structures, Frozen ground mechanics, Artificial freezing.

- 34-1399**  
**Engineering innovation for Arctic conditions.**  
Brown, R.J., American Society of Civil Engineers Pipeline Division Specialty Conference, New Orleans, Louisiana, Jan. 15-17, 1979. Proceedings, Vol.2, New York, N.Y., American Society of Civil Engineers, 1979, p.418-429.  
**Hydraulic structures, Sea ice, Pipe laying, Trenching, Models.**
- 34-1400**  
**Geotechnical surveillance and monitoring of the Trans-Alaska Pipeline.**  
Williams, R.D., et al. American Society of Civil Engineers Pipeline Division Specialty Conference, New Orleans, Louisiana, Jan. 15-17, 1979. Proceedings, Vol.2, New York, N.Y., American Society of Civil Engineers, 1979, p.474-480, 2 refs.  
Thomas, H.P.  
**Monitors, Cold weather construction, Pipelines, Permafrost preservation.**
- 34-1401**  
**Cold region pipeline construction.**  
Pendarvis, R.C., American Society of Civil Engineers Pipeline Division Specialty Conference, New Orleans, Louisiana, Jan. 15-17, 1979. Proceedings, Vol.2, New York, N.Y., American Society of Civil Engineers, 1979, p.481-485, 7 refs.  
**Cold weather construction, Pipelines, Climatic factors, Logistics.**
- 34-1402**  
**Pipe-soil interaction, Trans-Alaska Pipeline.**  
Luscher, U., et al. American Society of Civil Engineers Pipeline Division Specialty Conference, New Orleans, Louisiana, Jan. 15-17, 1979. Proceedings, Vol.2, New York, N.Y., American Society of Civil Engineers, 1979, p.486-502, 12 refs.  
Thomas, H.P., Maple, J.A.  
**Cold weather construction, Underground pipelines.**
- 34-1403**  
**Arctic winter construction and cost estimating of the North Slope fuel gas pipeline.**  
Bock, G.R., American Society of Civil Engineers Pipeline Division Specialty Conference, New Orleans, Louisiana, Jan. 15-17, 1979. Proceedings, Vol.2, New York, N.Y., American Society of Civil Engineers, 1979, p.511-520.  
**Gas pipelines, Cold weather construction, Underground facilities, Cost analysis, Trenching, Soil temperature.**
- 34-1404**  
**Meteorological aspects of the drift of ice from the Weddell Sea toward the mid-latitude westerlies.**  
Schwerdtfeger, W., *Journal of geophysical research*, Oct. 20, 1979, 84(C10), p.6321-6328, 31 refs.  
**Ice shelves, Sea ice, Drift, Wind (meteorology), Weddell Sea.**  
Persistent, moderate to strong southerly surface winds, so-called barrier winds, develop along the east side of the Antarctic Peninsula when the prevailing easterlies over the central and southern Weddell Sea carry cold, stable air masses toward the 1200° to 2000-m-high mountain barrier. Because of the lack of observations from the Weddell Sea itself, wind data for the topographically similar Ross Ice Shelf area are used to estimate the probable lateral extent of barrier winds. Frequency and duration of different types of winds at the key station Matienzo indicate the importance of the barrier effect for the drift of large ice masses northward and northeastward to the relatively low latitude of 63S. Such a guided discharge of ice into the belt of the subpolar and mid-latitude westerlies, not to be found in other sectors of the Antarctic, has a profound effect on the temperature conditions over the southern South Atlantic. Evidence for each of these statements is presented. (Auth.)
- 34-1405**  
**New role for icebergs.**  
Quinn, K.J., *Marine affairs journal*, Jan. 1978, No.5, p.72-95, 94 refs.  
**Iceberg towing, Ice (water storage), Water supply.**  
This discussion proceeds in two parts: first, it describes the emerging geographic qualities and attributes with which other world regions could most directly apply the practice of obtaining icebergs as a source of fresh water and other benefits, using current knowledge of the situation. Second, it examines the undecided nature of international law governing the ownership and transfer of icebergs. The characteristics of the iceberg resources available are described and the desirable attributes of a compatible destination are outlined. Present studies have concluded that towing antarctic icebergs to arid regions is technically feasible and can provide large quantities of fresh water at costs significantly lower than capital and/or energy-intensive alternate processes such as overland conveyance or seawater desalination.
- 34-1406**  
**Summary report.**  
Workshop on Remote Sensing of Sea Ice, Washington, D.C., Oct. 16-20, 1978. World Meteorological Organization, Commission for Marine Meteorology, [1978], 23p.  
DAS, A GB2401.W8  
**Sea ice distribution, Remote sensing, Ice mechanics, Photointerpretation, Airborne equipment, Mapping, Meetings.**
- 34-1407**  
**NOAA satellite-derived continental snow cover data base.**  
Wiesnet, D.R., et al. *Glaciological data*, Aug. 1979, GD-6, p.3-8, 4 refs.  
Matson, M.  
**Snow cover distribution, Remote sensing, Meteorological data, Charts, Spacecraft.**
- 34-1408**  
**Snow and pack ice indices.**  
Kukla, G., et al. *Glaciological data*, Aug. 1979, GD-6, p.9-14, 1 ref.  
Gavin, J.  
**Snow cover distribution, Pack ice, Ice conditions, Indices (ratios), Heat balance, Charts.**  
Data on snow pack ice distribution in the Northern and Southern Hemispheres are obtained by analyzing NOAA charts. A total of 70 geographic segments are assessed. Measurement is done by counting grid points along latitudinal lines. The grid density for the Southern Hemisphere is 2 deg of longitude per 2 deg of latitude equatorwards of latitude 70 deg, and 4 deg of longitude per 2 deg of latitude polewards of latitude 70 deg. A separate set of snow and ice cover indices is obtained by planimetry NOAA charts.
- 34-1409**  
**Alaskan snow cover.**  
Benson, C.S., *Glaciological data*, Aug. 1979, GD-6, p.19-25, 25 refs.  
**Snow physics, Depth hoar, Tundra regions, Taiga, Meteorological factors.**
- 34-1410**  
**Snow survey of Great Britain.**  
Ogden, R.J., *Glaciological data*, Aug. 1979, GD-6, p.27-37.  
**Snow surveys, Snow cover distribution, Snow depth, United Kingdom.**
- 34-1411**  
**Focus on U.S. snow research.**  
Colbeck, S.C., *Glaciological data*, Aug. 1979, GD-6, MP 1261, p.41-52, 34 refs.  
**Snow surveys, Research project., Impact, Agriculture, Water reserves.**
- 34-1412**  
**Snow and the organization of snow research in the United States.**  
Colbeck, S.C., *Glaciological data*, Aug. 1979, GD-6, MP 1262, p.55-58, 1 ref.  
**Snow surveys, Research projects.**
- 34-1413**  
**Snow cover: a selected bibliography.** *Glaciological data*, Aug. 1979, GD-6, p.71-93.  
**Snow surveys, Bibliographies, Snow cover.**  
This bibliography of world literature covers areal snow cover distribution, its temporal variations, and measurement techniques. The citations are divided into the following subjects: general snow cover extent, and snow cover mapping and remote sensing applications. Coverage is limited to works published from 1969 to 1979.
- 34-1414**  
**Glaciation of Antarctica (study results and prospects).**  
Aver'ianov, V.G., et al. *Polar geography*, July-Sep. 1978, 2(3), p.154-163, For Russian original see 9E-18381 or 31-3521. 35 refs.  
Korotkevich, E.S.  
**Ice sheets, Glaciology.**  
This is a review article on Soviet efforts in antarctic glaciology and other research areas, such as meteorology and hydrology, impinging on the present and past glaciation of the continent. The current need is to expand the research effort at continental stations where the ice sheet is less responsive to influences from without and is most stable.
- 34-1415**  
**Ground control and interpretation of satellite imagery in Antarctica.**  
Lutsenko, E.I., *Polar geography*, July-Sep. 1978, 2(3), p.164-166, For Russian original see 9C-18402. 3 refs.  
**Spaceborne photography, Photointerpretation, Mapping, Ice conditions.**  
United States satellite imagery, obtained from ESSA 8 and Nimbus 4, was used by Soviet Antarctic expeditions in 1969-1973 for the analysis of weather and ice conditions. The technique used to fit the satellite imagery to a grid of geographic coordinates and the use of known landmarks as ground control points are described. (Auth.)
- 34-1416**  
**Icing of ships.**  
Panov, V.V., *Polar geography*, July-Sep. 1978, 2(3), p.166-186, For Russian original see 9F-17923 or 31-1684. 77 refs.  
**Icing, Ice prevention, Wind factors, Ship icing.**  
Soviet and non-Soviet studies on conditions of ship icing are reviewed. Icing problems in the Antarctic are briefly touched upon.
- 34-1417**  
**Changes in the amount of multi-year ice in arctic seas during the current cooling trend.**  
Bulatov, L.V., et al. *Polar geography*, July-Sep. 1978, 2(3), p.216-218, 3 refs. For Russian original see 31-3545.  
Zakharov, V.F.  
**Sea ice, Climatic changes.**
- 34-1418**  
**Specialization of winter road maintenance, a pressing issue.** [Spetsializatsiia zimnego soderzhanii dorog - nazrevshii vopros].  
Kungurtsev, A.A., et al. *Avtomobil'nye dorogi*, Sep. 1979, No.9, p.7-8, In Russian. 4 refs.  
Ivanov, V.D.  
**Winter maintenance, Railroad tracks, Snow removal, Ice prevention, Roads.**
- 34-1419**  
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**Tundra, Forest tundra.**

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**Soil erosion, Gullies, Tundra soils, Economic development, Forest tundra.**

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**Permafrost distribution, Cryogenic soils, Soil erosion, Permafrost structure, Landscape development, Landscape types, Human factors, Geocryology, Environmental protection, USSR—Tyumen'.**

## 34-1511

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**Tundra, Environmental protection, Soil water migration, Frozen ground temperature, Drilling.**

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## 34-1515

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**Valleys, Permafrost distribution.**

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**Tundra, Mining, Environmental protection, Swamps, Peat.**

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**Placer mining, Dredging, Environmental protection, Soil erosion, Water pollution, Revegetation, Permafrost.**

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**Mining, Soil freezing, Frost protection, Thermal insulation.**

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**Lakes, Dams, Thermal regime, Air temperature, Humidity, Wind factors.**

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**Land reclamation, Cryogenic soils, Meadow soils, Active layer, Permafrost depth, Thermal regime, Soil water migration, Heat transfer, USSR—Yakutia.**

## 34-1521

**Hydrothermal variations in permafrost landscapes.** [Kriogidrogennye izmeneniia landschafty]

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**Active layer, Human factors, Pollution, Frozen ground temperature, Permafrost hydrology, Taliks, Environmental protection, Water chemistry, Landscape development.**

## 34-1522

**Thermal conductivity of natural and disturbed soils in northwestern Siberia.** [Teploprovodnost' estestvennykh i narushennykh gruntov na severe Zapadnoi Sibiri]

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Skriabin, N.P.

**Forest tundra, Cryogenic soils, Peat, Thermal conductivity, Human factors, Soil erosion, Environmental protection.**

## 34-1523

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**Slope processes, Slope stability, Computerized simulation.**

## 34-1524

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Tsybin, A.M.

**Thermal conductivity, Theories, Analysis (mathematics).**

## 34-1525

**Mathematical modeling of thermal stresses in concrete structures on rock foundations.** [Matematicheskoe modelirovanie termonaprazhennogo sostoiianiia betonnykh massivov vozvodimykh na skal'nom osnovanii]

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Trapeznikov, L.P.

**Concrete structures, Hydraulic structures, Dams, Thermal stresses, Mathematical models.**

## 34-1526

**Calculating quasi-stationary temperature and seepage fields in massive hydraulic structures and foundations by the finite element and finite difference methods.** [Raschet kvazistatsionarnykh temperaturnykh i filtratsionnykh polei v massivnykh gidrosooruzheniakh i osnovaniakh]

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Tsybin, A.M.

**Hydraulic structures, Earth dams, Concrete structures, Rock fills, Thermal regime, Seepage.**



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Roofs, Waterproofing, Construction materials, Frost resistance.

34-1528

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34-1529

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Sands, Freeze thaw cycles, Frost resistance, Frozen ground strength, Ultrasonic tests.

34-1530

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Soil compaction, Hydraulic structures, Earth dams, Earth fills, Frozen ground.

34-1531

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Tunnels, Fracture zones, Grouting, Baykal Amur railroad, Cements, Permafrost.

34-1532

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Hydraulic structures, Earth dams, Seepage, Soil stabilization, Cements, Polymers.

34-1533

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Geocryology, Engineering geology, Seasonal freeze thaw, Frozen fines, Frozen ground physics, Foundations, Permafrost bases, Permafrost beneath structures, Mining, Ground ice, Ice physics, Rheology, Cryogenics.

34-1534

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Saline soils, Soil freezing, Frozen ground mechanics, Bearing strength, Rheology, Frost penetration, Unfrozen water content, Creep.

34-1535

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Frozen fines, Clays, Frozen ground strength, Compressive properties.

34-1536

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Shear strength, Concrete structures, Foundations, Permafrost beneath structures, Metals, Adfreezing strength.

34-1537

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Foundations, Permafrost bases, Ground thawing, Frozen ground settling.

34-1538

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Permafrost beneath structures, Concrete piles, Pile driving, Reinforced concretes, Design.

34-1539

Using fraction-linear relationships in pile design. (Raschet svai s ispol'zovaniem drobo-lineinoy zavisimosti). Mirenburg, I.U.S., Inzhenernoe merzlotovedenie (Engineering geocryology) edited by P.I. Mel'nikov, Moscow, Nauka, 1979, p.63-67, In Russian. 7 refs. Piles, Permafrost beneath structures, Frozen ground settling, Design.

34-1540

Performance of piles in plastic frozen ground. (Analiz raboty svai v plastichno-merzlykh gruntakh). Slepak, M.E., Inzhenernoe merzlotovedenie (Engineering geocryology) edited by P.I. Mel'nikov, Moscow, Nauka, 1979, p.67-71, In Russian. 11 refs. Piles, Permafrost beneath structures, Frozen ground settling, Compressive properties, Creep, Design.

34-1541

Artificial cooling of ground with thermopiles. (Iskustvennoe okhlazhdenie gruntov s pomoshch'iu termosval). Vialov, S.S., et al, Inzhenernoe merzlotovedenie (Engineering geocryology) edited by P.I. Mel'nikov, Moscow, Nauka, 1979, p.72-91, In Russian. 18 refs. Aleksandrov, I.U.A., Mirenburg, I.U.S., Fedoseev, I.U.G.

Artificial freezing, Soil freezing, Thermopiles, Frozen ground strength, Permafrost control, Foundations, Design.

34-1542

Selecting a method for using permafrost bases for buildings and structures. (Vybór printsiipa ispol'zovaniia vechnomerzlykh gruntov v kachestve osnovaniy zdaniy i sooruzheniy). Khrustalev, L.N., Inzhenernoe merzlotovedenie (Engineering geocryology) edited by P.I. Mel'nikov, Moscow, Nauka, 1979, p.91-103, In Russian. 13 refs. Foundations, Permafrost bases, Design, Buildings.

34-1543

Engineering and geological conditions of construction on permafrost in Transbaikalia and the Baykal Amur railroad area. (Inzhenerno-geologicheskie uslovia stroitel'stva na vechnomerzlykh gruntakh v usloviakh Zabaikal'ia i trassy BAM). Mosenkis, I.U.M., Inzhenernoe merzlotovedenie (Engineering geocryology) edited by P.I. Mel'nikov, Moscow, Nauka, 1979, p.104-108, In Russian. 6 refs. Foundations, Permafrost bases, Frozen ground settling, Permafrost control, Buildings.

34-1544

Experimental study of heat transfer in fluid thermopiles. (Eksperimental'nye issledovaniia teploobmena v zhidkostnykh termosvalakh). Kononov, A.A., et al, Inzhenernoe merzlotovedenie (Engineering geocryology) edited by P.I. Mel'nikov, Moscow, Nauka, 1979, p.109-117, In Russian. 7 refs. Naumova, L.A.

Soil freezing, Artificial freezing, Thermopiles, Coolants, Heat transfer.

34-1545

Reestablishing the frozen state of ground for preventing deformations of buildings and structures. (Vostanovlenie merzlogo sostoiianiia gruntov dlia predotvrascheniia deformatsii zdaniy i sooruzheniy). Aleksandrov, I.U.A., Inzhenernoe merzlotovedenie (Engineering geocryology) edited by P.I. Mel'nikov, Moscow, Nauka, 1979, p.117-121, In Russian. Foundations, Permafrost bases, Ground thawing, Frozen ground settling, Permafrost control, Thermopiles, Buildings.

34-1546

Forecasting sliding of frozen rock tailings on rocky slopes. (O prognoze opolzanii otvalov merzlykh porod na skal'nykh sklonakh). Bondarenko, G.I., Inzhenernoe merzlotovedenie (Engineering geocryology) edited by P.I. Mel'nikov, Moscow, Nauka, 1979, p.122-128, In Russian. 9 refs. Tailings, Frozen rocks, Slope processes, Sliding, Creep rate, Forecasting.

34-1547

Strength and stability of frozen walls of shafts and mining excavations in permafrost. (Prochnost' i ustoi-chivost' ledogruntovykh ograzhdenii shakhtnykh stvolov i stenok gornykh vyrabotok v merzlykh gruntakh). Vialov, S.S., et al, Inzhenernoe merzlotovedenie (Engineering geocryology) edited by P.I. Mel'nikov, Moscow, Nauka, 1979, p.129-148, In Russian. 11 refs. Zaretskii, I.U.K., Gorodetskii, S.E.

Mine shafts, Walls, Rock excavation, Permafrost control, Artificial freezing, Mining, Design.

34-1548

Engineering problems of geocryological surveying of BAM construction sites. (Inzhenernye problemy pri geokriologicheskikh izyskaniakh na ploshchadkakh trassy BAM). Vialov, S.S., Inzhenernoe merzlotovedenie (Engineering geocryology) edited by P.I. Mel'nikov, Moscow, Nauka, 1979, p.149-156, In Russian. Site surveys, Geocryology, Engineering geology, Permafrost structure, Geocryology, Permafrost hydrology, Avalanches, Baykal Amur railroad.

34-1549

Engineering and geological justifications of construction in the BAM area. (Osobennosti inzhenerno-geologicheskogo obosnovaniia stroitel'stva v zone BAM). Levkovich, A.I., Inzhenernoe merzlotovedenie (Engineering geocryology) edited by P.I. Mel'nikov, Moscow, Nauka, 1979, p.157-164, In Russian. 7 refs. Site surveys, Permafrost structure, Buildings, Foundations, Permafrost forecasting, Earthquakes, Baykal Amur railroad.

34-1550

Permafrost classification according to physico-mechanical properties for pipeline construction. (Klassifikatsiia m.egoletnemerzlykh gruntov po ikh fiziko-mekhanicheskim svoystvam (primeritel'no k stroitel'stvu truboprovodov)). Maksimiak, R.V., Inzhenernoe merzlotovedenie (Engineering geocryology) edited by P.I. Mel'nikov, Moscow, Nauka, 1979, p.165-172, In Russian. 6 refs. Pipelines, Foundations, Permafrost beneath structures, Active layer, Frost heave, Permafrost physics, Classifications.

34-1551

Determining the settlement of thawing coarse clastic deposits in mountains of the northeastern USSR. (Opyt opredeleniia osadok ottaivaiushchikh krupnoblomochnykh otlozheniy v gornykh raiionakh Severo-Vostoka SSSR). Talbashev, V.N., et al, Inzhenernoe merzlotovedenie (Engineering geocryology) edited by P.I. Mel'nikov, Moscow, Nauka, 1979, p.173-178, In Russian. 7 refs. Aidla, T.A.

Foundations, Permafrost bases, Gravel, Frozen fines, Permafrost structure, Ice wedges, Frozen ground settling, Ground thawing, Artificial thawing, Buildings.

34-1552

Rheological properties of ice. (Reologicheskie svoystva l'da). Zaretskii, I.U.K., et al, Inzhenernoe merzlotovedenie (Engineering geocryology) edited by P.I. Mel'nikov, Moscow, Nauka, 1979, p.179-191, In Russian. 9 refs. Chumichev, B.D.

Ice (construction material), Ice crossings, Ice cover thickness, Ice deformation, Ice creep, Rheology, Ice structure, Defects.

34-1553

Protection from glacial mudflows. (Sposoby zashchity ot vodosnezhnykh potokov). Votkovskii, K.F., et al. *Inzhenernoe merzlotovedenie* (Engineering geocryology) edited by P.I. Mel'nikov, Moscow, Nauka, 1979, p.191-198. In Russian. 2 refs. Sapunov, V.N.

Slope processes, Glacial hydrology, Mudflows, Wet snow, Snow melting, Avalanche engineering.

34-1554

Frozen earth dam on polygonal vein ice. (Merzlotnaia plotina na polygonal'no zhi'nykh l'dakh). Kuznetsov, A.L., *Inzhenernoe merzlotovedenie* (Engineering geocryology) edited by P.I. Mel'nikov, Moscow, Nauka, 1979, p.198-201. In Russian. 6 refs.

Hydraulic structures, Earth dams, Permafrost bases, Permafrost structure, Ice veins.

34-1555

Use of isotope tracers in glaciology. (Traceurs isotopiques et glaciologie). Merlivat, L., et al. *Houille blanche*, 1976, No.3/4, Special issue, p.285-289. In French. 5 refs. Lorius, C.

Isotope analysis, Ice sheets, Snow composition, Precipitation (meteorology), Glacial hydrology.

Natural variations in the concentration of stable hydrogen and oxygen isotopes (deuterium and oxygen 18) and artificial tritium are considered in determining the origin and the renewal and transit times of water in given flow systems. Much of the necessary data is "filed" in the ice at the poles and in glaciers. Polar ice samples, for example, provide information on deuterium and oxygen 18 variations with mean temperature and seasonal changes in the considered precipitation area, and also on tritium distribution in rain and snowfall during the last twenty years. Data yielded by core samples of ice from both polar regions and the Mont Blanc glaciers in the French Alps is discussed. (Auth.)

34-1556

Sediment transport in the Tanana River in the vicinity of Fairbanks, Alaska, 1977-78. Burrows, R.L., et al. *U.S. Geological Survey. Open-file report*, 1979, No.79-1539, 37p., 7 refs.

Parks, B., Emmett, W.W. Suspended sediments, Sediment transport, Stream flow, Statistical data, United States—Alaska—Tanana River.

34-1557

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Murray, D.F., Dawe, J.C. Plants (botany), Vegetation patterns, Environmental protection.

34-1558

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Supercooling, Concrete durability, Freeze thaw tests, Chemical ice prevention, Damage, Thermal stresses, Temperature variations, Ice cover thickness, Thermal expansion.

34-1559

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Reimnitz, E. Sea ice, Ice scoring, Bottom sediment, Sedimentation, Hydrodynamics, Beaufort Sea.

34-1560

1977 tundra fires in the Seward Peninsula, Alaska: effects and initial revegetation. Racine, C.H., *U.S. Bureau of Land Management, Technical report*, June 1979, BLM/AK/TR-79/04, 51p., Refs. p.41-44

Tundra, Fires.

34-1561

Time-energy budget of the semipalmated sandpiper *Calidris pusilla* at Barrow, Alaska. Ashkenazie, S., et al. *Ecology*, 1979, 60(4), p.783-799, 42 refs.

Safriel, U.N. Ecology, Animals, Feeding habits, Tundra, Birds, Breeding, United States—Alaska—Barrow.

34-1562

Terrain evaluation of a portion of the Fort Greely automotive test course. Shamburger, J.H., *U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi. Miscellaneous paper*, Dec. 1966, No.3-861, 33p. + 29 photos and plates, AD-806 538, 7 refs.

Terrain identification, Topographic surveys, Site surveys, Tracked vehicles, Trafficability, Classifications, Mapping, Active layer, Snow depth, Ice cover thickness, Subarctic regions.

34-1563

User manual for programs VISICE and VISFIT. Katona, M.G., *U.S. Naval Construction Battalion Center, Port Hueneme, Calif. Civil Engineering Laboratory. Contract report*, June 1979, CR 79.016, 60p., ADA-077 868, 5 refs.

Sea ice, Ice structure, Loads (forces), Ice strength, Ice mechanics, Computer programs, Manuals, Ice elasticity.

34-1564

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Aircraft landing areas, Airplanes, Snow cover effect, Friction, Snow strength, Snow compression, Loads (forces), Snow physics, Theories.

34-1565

Glaciology. Weertman, J., New York, McGraw Hill Yearbook of Science and Technology, 1977, p.240-242, 10 refs.

Glaciology, Glaciers, Glacier melting, Glacier surges. Borehole and radar measurements of the antarctic ice sheet indicate that basal regions are at the melting temperature; therefore, the West Antarctic ice sheet may have surged. The disintegration of the West Antarctic ice sheet would produce a rise of sea level of about 6 m. Theories of ice sheet disintegration stability, and ice age are discussed.

34-1566

Glaciological investigations in Johan Dahl Land, South Greenland, as a basis for hydroelectric power planning. Olesen, O.B., Denmark. *Grönlands geologiske undersøgelse. Rapport*, 1879, No.90, p.84-86.

Electric power, Glacial hydrology, Water reserves, Glacier ablation, Runoff, Climate, Mapping, Greenland—Johan Dahl Land.

34-1567

Pingos of the Tuktoyaktuk Peninsula area, Northwest Territories. Mackay, J.R., *Geographic physique du Quatenaire*, 1979, 33(1), p.3-61. In English with French and Russian summaries. Refs. p.55-61.

Pingos, Subpermafrost ground water, Bottom sediment, Lacustrine deposits, Permafrost, Water pressure.

34-1568

Determining frost resistance of concrete from the compensation factor. (Opredelenie morozostoikosti betona po kompensatsionnomu faktor). Shlaen, A.G., *Beton i zhelezobeton*, Oct. 1979, No.10, p.37-38, In Russian. 5 refs.

Concrete structures, Concrete strength, Frost resistance, Concrete admixtures, Air entrainment, Low temperature tests.

34-1569

Passive microwave applications to snowpack monitoring using satellite data. Hall, D.K., et al. *U.S. National Aeronautics and Space Administration. Goddard Space Flight Center. Technical memorandum*, June 1979, NASA-TM-80310, 15p. N79-28649.

Foster, J.L., Chang, A.T.C., Rango, A. Snow cover distribution, Snow depth, Snow temperature, Spacecraft, Microwaves, Radiometry.

34-1570

Icing tests of a UH-1H helicopter with an electro-thermal ice protection system under simulated and natural icing conditions. Cotton, R.H., *U.S. Army Research and Technology Laboratories. Technical report*, Apr. 1979, USARTL-TR-78-48, 81p. ADA-067 737.

Helicopters, Aircraft icing, Environmental tests, Ice prevention.

34-1571

Seismic regionalization of eastern Siberia and its geological and geophysical foundations. Solonenko, V.P., Arlington, Virginia, Joint Publications Research Service, 1979, 435p. JPRS-74093.

Translation of Seismicheskoe raionirovanie vostochnoi Sibiri i ego geologo-geofizicheskie osnovy, Novosibirsk, 1977, p.1-304.

Earthquakes, Seismic surveys, Permafrost.

34-1572

Pollution characteristics of stormwater runoff. Bennett, E.R., et al. Fort Collins, Colorado State University, 1978, 226p. PB-290 309.

Limstedt, K.D. Water pollution, Snowmelt, Runoff, Rain.

34-1573

Construction of an ice-retardant overlay. Nittinger, R.J., New York. State Department of Transportation. Engineering Research and Development Bureau. Research report, June 1979, NYSDT-143-1, 28p. PB-298 876.

Roads, Ice formation, Ice prevention, Protective coatings, Bituminous concretes, Salting, Corrosion.

34-1574

Design and specification bid package for a 2,500 gpd eutectic freezing pilot plant. Fluor Engineers and Constructors, Inc., Irvine, California, *U.S. Office of Water Research. Report*, Mar. 1979, W79-06858, 167p. PB-295 916.

Desalting, Artificial freezing.

34-1575

VHF downline communication system for SLAR data. Schertler, R.J., et al. *U.S. National Aeronautics and Space Administration. Lewis Research Center. Technical memorandum*, 1979, NASA-TM-79164, 10p. N79-23313. Paper presented at the 13th International Symposium on Remote Sensing of Environment, Ann Arbor, Michigan, April 23-27, 1979.

Chase, T.L., Mueller, R.A., Kramarchuk, I., Jirberg, R.J. Side looking radar, Radar photography, Lake ice, Ice navigation.

34-1576

Arctic terminal for icebreaking tankers study: conceptual design, final report. Lewis, A.E., *U.S. Maritime Administration. Research and Development report*, Mar. 1979, MA-RD-970-79050, 245p., PB-295 937. For Executive Summary of this report see 34-1507 (PB-295 514).

Bechtel Inc., Houston. Pipeline Division. Ports, Icebreakers, Tanker ships, Oil storage, Moorings.

34-1577

Antifreeze-thermodrilling for core through the central part of the Ross Ice Shelf (J-9 Camp), Antarctica. Zotikov, I.A., *U.S. Army Cold Regions Research and Engineering Laboratory*, Nov. 1979, CR 79-24, 12p., ADA-078 748, 11 refs.

Ice shelves, Ice cores, Drill core analysis. By using a new thermocoring technique, a hole was successfully drilled through the 416-m thickness of the Ross Ice Shelf at J-9 Camp. This report provides a description of the drill and an account of this drilling project. A provisional examination of the core shows the ice shelf to consist of 410 m of snow and glacial ice underlain by 6 m of sea ice formed by direct freezing of sea water to the bottom of the Ross Ice Shelf. (Auth.)

34-1578

Electron microscope investigations of frozen and unfrozen bentonite. Kumai, M., *U.S. Army Cold Regions Research and Engineering Laboratory*, Nov. 1979, CR 79-28, 14p., ADA-078 776, 12 refs.

Electron microscopy, Frozen ground physics, Soil structure, Clay soils. Transmission and scanning electron micrographs of Umat bentonite revealed thin, mica-like grains with irregular shapes. Most of the bentonite showed electron diffraction ring patterns, but some showed hexagonal net patterns as well as ring patterns. The lengths of the unit cells were calculated to be 5.18 Å along the a-axis and 8.97 Å along the b-axis. Semiquantitative analyses were made using an energy dispersive spectrometer. Common elements such as Si, Ti, Al, Fe, Mg, Na and K were determined. The molecular ratio of SiO<sub>2</sub>/Al<sub>2</sub>O<sub>3</sub> was calculated to be 492/100 for the bulk sample, indicating that Umat bentonite is similar in most respects to Wyoming bentonite, and is classified as a montmorillonite. The microstructure of frozen Umat bentonite was observed at a specimen temperature of -100°C using a scanning electron microscope equipped with a cold stage. Frozen bentonite and segregated ice patterns formed from wet bentonite were examined using an X-ray map and Si X-ray line scan. Sublimation processes of ice in the frozen bentonite were observed at specimen temperatures of -60 and -80°C. After sublimation of the ice, the bentonite displayed a honeycomb structure. It was concluded that the freezing-

sublimation cycle in frozen soil increases the permeability of water vapor due to the three-dimensional structure of the coagulated clay formed by freezing.

#### 34-1579

##### Under-ice volcanoes.

Miller, K., *Geographical journal*, Mar. 1979, 145(1), p.36-55, Appendix 1: The radio echo sounding equipment by A.D.G. Cumming, R.L. Ferrari and G. Owen; Appendix 2: Survey by J. Bishop; and Appendix 3: The Weasel by S. Chandler. 15 refs.

**Expeditions, Traverses, Radar echoes, Ice cover thickness, Geothermal thawing, Vehicles.**

#### 34-1580

**Computation of backwater curves under ice covers.** Michel, B., *Université Laval. Faculté des sciences et de génie civil. Rapport*, Nov. 1979, GCS-79-03, 24 leaves, 9 refs.

**River ice, Water flow, Subglacial observations, Water temperature, Ice bottom surface.**

#### 34-1581

**Investigation into the use of time domain reflectometry to determine the unfrozen water content of freezing soils.**

Smith, M.W., et al., *Canada. Department of Energy, Mines and Resources. Earth Physics Branch. Open file*, 1979, No.79-14, 37p., In English with French summary. 29 refs.

**Soil freezing, Unfrozen water content, Electromagnetic prospecting, Electronic equipment.**

#### 34-1582

**Investigation of rates of water movement through frozen soil.**

Williams, P.J., et al., *Canada. Department of Energy, Mines and Resources. Earth Physics Branch. Open file*, 1979, No.79-15, 36p. + 4 append., 18 refs.

**Soil water migration, Frozen ground, Hydraulics, Temperature gradients, Unfrozen water content, Velocity.**

#### 34-1583

**Laboratory and field studies to investigate isotope effects occurring during the formation of permafrost.** Michel, F., et al., *Canada. Department of Energy, Mines and Resources. Earth Physics Branch. Open file*, 1979, No.79-16, 64p., In English with French summary. 4 refs.

**Permafrost hydrology, Soil freezing, Isotopes, Freezing rate, Temperature effects, Tests.**

#### 34-1584

##### Crude oil in cold water.

Milne, A.R., et al., Beaufort Sea Project, n.d., 119p., Available from Inst. of Ocean Sciences, Patricia Bay, Sidney, B.C.

Herlinveaux, R.H.

**Sea ice, Oil spills, Environmental impact, Oceanography, Beaufort Sea.**

#### 34-1585

**Report from the working group on noncorrosive methods of ice control.** Public works and public utilities: report from a workshop considering problems identified by the Intergovernmental Science, Engineering, and Technology Advisory Panel, September 5-7, 1979, College Park, Maryland, Washington, D.C., American Association for the Advancement of Science, 1979, p.41-55.

**Meetings, Human factors, Ice control, Environmental impact, Chemical ice prevention, Corrosion.**

#### 34-1586

##### Noncorrosive methods of ice control.

Minsk, L.D., MP 1265, Public works and public utilities: report from a workshop considering problems identified by the Intergovernmental Science, Engineering, and Technology Advisory Panel, September 5-7, 1979, College Park, Maryland, Washington, D.C., American Association for the Advancement of Science, 1979, p.133-162, 33 refs.

**Roads, Ice control, Chemical ice prevention, Environmental impact, Salting.**

#### 34-1587

##### [Proceedings].

Technical Seminar on Alaskan Beaufort Sea Gravel Island Design, Houston, Texas, Exxon Production Research Co., Oct. 1979, 9 papers, Refs. passim. For individual papers see 34-1588 through 34-1596.

Exxon Company, U.S.A.

**Artificial islands, Gravel, Ice loads, Ice mechanics, Ice pressure, Offshore landforms, Meetings, Beaufort Sea.**

#### 34-1588

##### Overview of design procedure.

Jahns, H.O., Technical Seminar on Alaskan Beaufort Sea Gravel Island Design, Houston, Texas, Production Research Co., Oct. 1979, 11p. + 10 slides, 1 ref.

**Artificial islands, Gravel, Loads (forces), Sea ice, Ice conditions, Design criteria.**

#### 34-1589

##### Oceanographic design criteria.

Heideman, J.C., Technical Seminar on Alaskan Beaufort Sea Gravel Island Design, Houston, Texas, Production Research Co., Oct. 1979, 10p. + 4 tables + 17 slides, 12 refs.

**Artificial islands, Gravel, Oceanographic surveys, Design criteria, Offshore landforms.**

#### 34-1590

##### Sea ice statistics.

Wheeler, J.D., Technical Seminar on Alaskan Beaufort Sea Gravel Island Design, Houston, Texas, Production Research Co., Oct. 1979, 10p. + 11 slides, 5 refs.

**Sea ice distribution, Artificial islands, Gravel, Ice pressure, Loads (forces), Ice mechanics, Statistical analysis, Ice conditions.**

#### 34-1591

##### Sea ice properties.

Wang, Y.S., Technical Seminar on Alaskan Beaufort Sea Gravel Island Design, Houston, Texas, Production Research Co., Oct. 1979, 11p. + 24 slides, 9 refs.

**Sea ice, Ice crystal structure, Ice strength, Ice loads, Artificial islands.**

#### 34-1592

##### Sea ice loads.

Ralston, T.D., Technical Seminar on Alaskan Beaufort Sea Gravel Island Design, Houston, Texas, Production Research Co., Oct. 1979, 27p. + 34 slides, 11 refs.

**Sea ice, Ice loads, Ice pressure, Artificial islands, Ice mechanics, Ice conditions, Seasonal variations, Gravel.**

#### 34-1593

##### Geotechnical criteria.

Prodanovic, A., Technical Seminar on Alaskan Beaufort Sea Gravel Island Design, Houston, Texas, Production Research Co., Oct. 1979, 11p. + 11 slides, 6 refs.

**Artificial islands, Frozen ground strength, Marine geology, Thermal properties, Offshore landforms, Gravel, Ice loads, Grain size, Design criteria.**

#### 34-1594

##### Exploration island design.

Prodanovic, A., Technical Seminar on Alaskan Beaufort Sea Gravel Island Design, Houston, Texas, Production Research Co., Oct. 1979, 13p. + 25 slides, 9 refs.

**Artificial islands, Strength, Ice conditions, Ice pressure, Gravel, Drilling, Design criteria.**

#### 34-1595

##### Island defence and monitoring.

Templeton, J.S., III, Technical Seminar on Alaskan Beaufort Sea Gravel Island Design, Houston, Texas, Production Research Co., Oct. 1979, 13p. + 20 slides, 9 refs.

**Artificial islands, Trenching, Ice loads, Ice pressure, Countermeasures, Offshore landforms, Gravel, Monitors.**

#### 34-1596

##### Production islands.

Jahns, H.O., Technical Seminar on Alaskan Beaufort Sea Gravel Island Design, Houston, Texas, Production Research Co., Oct. 1979, 16p. + 23 slides, 5 refs.

**Artificial islands, Strength, Ice loads, Ice mechanics, Ice pileup, Offshore landforms, Design.**

#### 34-1597

##### Icebergs: an overview.

Kovacs, A., *U.S. Army Cold Regions Research and Engineering Laboratory*, July 1979, SR 79-21, 7p., ADA-078 692, 9 refs.

##### Icebergs, Classifications.

Icebergs are discussed and categorized according to their size, shape, composition and color. A general overview of iceberg-producing areas in the Arctic and Antarctic is given, and their drift and deterioration are discussed. (Auth.)

#### 34-1598

##### Test of snow fortifications.

Farrell, D.R., *U.S. Army Cold Regions Research and Engineering Laboratory*, Oct. 1979, SR 79-33, 15p., ADA-078 742, 16 refs.

**Penetration tests, Military engineering, Snow (construction material), Fortifications, Small arms ammunition.**

A field study was conducted to 1) more accurately define the degree of protection offered by simple snow fortification and 2) evaluate the effort required by infantry troops to build such fortifications when only basic tools are available. A seven-man

infantry squad, equipped with standard issue snow shovels and an arctic sled (Akhiot), constructed several simple snow structures. Construction was made more difficult by the imposition of a camouflage discipline requirement. When completed, three positions were subjected to M16A1 rifle fire while the infantry squad executed a simulated tactical assault. A fourth and much larger position was tested with simulated covering fire from a M2HB 50-caliber machine gun. None of the 5.56-mm bullets fired by the squad from ranges of 200 m to as close as 10 m managed to penetrate the 1.8-m-thick snow embankments. The 12.7-mm-diameter bullets fired from the M2HB at a range of 250 m were all stopped by 3.0 m of packed snow. The camouflage considerations and the shallow snow conditions increased the construction time for the three small emplacements by almost a factor of four, and for the larger emplacement by almost a factor of three. But the squad still handled a volume of packed snow that was equal to 3.7 times the volume of unfrozen soil that could be handled with the same amount of effort, according to field manual estimates. Under frozen soil conditions the advantages of using snow would be significantly greater.

#### 34-1599

**Prototype overland flow test data: June 1977-May 1978.**

Jenkins, T.F., et al., *U.S. Army Cold Regions Research and Engineering Laboratory*, Nov. 1979, SR 79-35, 91p., ADA-078 743, 9 refs.

**Waste treatment, Water treatment, Irrigation, Soil chemistry, Ion exchange, Meteorological data.**

A prototype overland flow land treatment system was operated at Hanover, New Hampshire, over a one-year cycle from June 1977 to May 1978. The individual data points collected over this period for water quantity and quality are presented, as well as plant yields and nutrient uptake. The soil chemical and physical parameters measured are also presented along with a table of initial site characteristics. The meteorological measurements obtained in support of this effort are included to complete the data base.

#### 34-1600

**Icegoing drill ships.** *Engineering*, Nov. 1979, 219(11), p.1460-1461.

**Icebreakers, Ships, Offshore drilling.**

#### 34-1601

**Plutonium in glaciers.** *Analytical chemistry*, Dec. 1979, 51(14), p.1419A-1422A, 6 refs.

**Ice shelves, Ice sheets, Ice composition, Isotope analysis.**

Recent investigations of ice cores of Greenland and Antarctica are reviewed. Using <sup>210</sup>Pb geochronology and alpha spectrometry, specific analyses were made for plutonium isotopes in the ice sheet of South Greenland and at Dome C and on the Ross Ice Shelf in Antarctica.

#### 34-1602

**Augmentation of earth heating for purposes of road-way deicing—Final report.**

Pravda, M.F., et al., *U.S. Federal Highway Administration. Office of Research and Development. Report*, Dec. 1978, FHWA-RD-79-81, 193p., 48 refs.

**Ice prevention, Road icing, Heating, Solar radiation, Storage, Air temperature, Pipeline heating, Seasonal variations, Cost analysis.**

#### 34-1603

##### Model for the ice VII-ice VIII transition.

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34-1674

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34-1675

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34-1678

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34-1679

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34-1684

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Wilkerson, J.C., Sherman, J.W., III, Lame, D.B.  
Remote sensing, Spaceborne photography, Meteorological data, Water temperature, Microwaves, United States—Alaska—Gulf of Alaska.
- 34-1735**  
Study of frost and ice prediction system on the Rouge River bridge. Final report. Crane, H.L., et al. *Michigan. Bureau of State Highways. Report*, Oct. 1974, TSD-255-74, 42p. PB-249 641.  
Blikken, W.A., Paesani, G.F.  
Frost forecasting, Ice forecasting, Bridges.
- 34-1736**  
Water quality in Alaskan campgrounds. Murphy, A.S., *Alaska. University. Institute of Water Resources. Report*, 1973, IWR-38, 108p., PB-228 851, 52 refs.  
Water supply, Water pollution, Waste disposal.
- 34-1737**  
Development of icebreakers and icebreaking methods; library search of Russian and European literature (Supplement). Dvorak, G.J., *Duke University. Department of Civil Engineering. Literature search report*, CG-D-13-76, Oct. 1974, 3 vols., ADA-020 602 through ADA-020 604, Collection of articles in Russian and German. Refs. passim.  
Icebreakers, Ice breaking, Protective coatings, Ice navigation, Ice physics.
- 34-1738**  
Design of river icebreakers; library search of Russian and European literature (Supplement). Dvorak, G.J., *Duke University. Department of Civil Engineering. Literature search report*, CG-D-12-76, Aug. 1972, 13 vols., ADA-020 605 through AD-A-020 617, Collection of articles in Russian and German. Refs. passim.  
Icebreakers, Protective coatings, Ice navigation, Ice physics, Fatigue (materials), Fracturing, River ice, Design.
- 34-1739**  
Icing of an unheated non-rotating cylinder in liquid water droplet-ice crystal clouds. Lozowski, E.P., et al. *National Research Council, Canada. Division of Mechanical Engineering Laboratory technical report*, Feb. 1979, LT-96, 66p., + figures, 47 refs.  
Stallabrass, J.R., Hearty, P.F.  
Aircraft icing, Ice accretion, Ice crystal adhesion, Heat transfer, Helicopters, Thermodynamics, Cloud chambers, Supercooled clouds, Models.
- 34-1740**  
Size distribution and Z-R relationship of snow particles observed in Nagasaki, Pt. 1. Yagi, T., et al. *Japan. National Research Center for Disaster Prevention. Report*, Oct. 1979, No.22, p.49-61. In Japanese with English summary. 13 refs. Seino, H.  
Snowflakes, Particle size distribution, Radar echoes, Precipitation gages, Snowfall.
- 34-1741**  
Unconfined compression test of frozen sandy soil. Hirobe, R., et al. *Japan. National Research Center for Disaster Prevention. Report*, Oct. 1979, No.22, p.167-173. In Japanese with English summary. 4 refs. Ikarashi, T.  
Frozen ground strength, Compressive properties, Ground ice, Thermal conductivity, Soil freezing, Snow cover effect, Water films, Cracking (fracturing), Snow removal.
- 34-1742**  
Local features of snow cover of Japan in January. Nakamura, T., *Japan. National Research Center for Disaster Prevention. Report*, Oct. 1979, No.22, p.175-177, 6 refs.  
Snow cover structure, Snow depth, Air temperature, Temperature effects, Japan.
- 34-1743**  
Condensation-freezing mechanism at weak supersaturation in respect of ice. (Mécanisme de condensation-congélation à faible sursaturation par rapport à la glace). Guenier, J.C., et al. *Journal de recherches atmosphériques*, Apr.-June 1979, 13(2), p.81-91. In French with English summary. 6 refs. Admirat, P.  
Ice crystal nuclei, Condensation nuclei, Freezing points, Supersaturation, Bounder, Layer, Temperature effects, Silver iodide.
- 34-1744**  
Observations of fall streak generation from glaciating altocumulus floccus. Black, T.L., *Journal de recherches atmosphériques*, Apr.-June 1979, 13(2), p.157-164. In English with French summary. 16 refs.  
Ice crystal nuclei, Supercooled clouds, Cloud droplets, Temperature effects.
- 34-1745**  
Lake Champlain ice formation and ice free dates and predictions from meteorological indicators. Bates, R.E., et al. *U.S. Army Cold Regions Research and Engineering Laboratory. Report*, Nov. 1979, CR 79-26, 21p., ADA-079 640, 11 refs.  
Brown, M.-L.  
Lake ice, Ice formation, Ice breakup, Meteorological data, Periodic variations.  
A 19-yr record of the annual closing and opening dates of operation of the Lake Champlain ferry at Grand Isle, Vermont, which are controlled by the lake's ice cover, was made available to CRREL. These navigation records accurately approximated the freeze-over and breakup dates for the ferry crossing area between Gordon Landing, Vermont, and Cumberland Head, New York. When compared statistically with water temperature and climatological data for the same years at nearby Lake Champlain locations, the dates allowed accurate predictions of ice formation. From nearby air temperature records, cumulative freezing degree-day (C) curves were plotted for each year of record, and ice formation dates and standard deviations were predicted with considerable accuracy. Several methods of predicting ice formation on Lake Champlain were attempted. The most accurate approach used a combination of water temperatures and freezing degree-days. The influence of wind speed on ice cover formation and prediction are also discussed in the report.



34-1746

**X- or gamma-rays from supernovae in glacial ice.** Rood, R.T., et al. *Nature*, Dec. 13, 1979, 282(5740), p.701-702, 19 refs.

Sarazin, C.L., Zeller, E.J., Parker, B.C.

**Glacier ice, Ice cores, Radiation.**

In an analysis of NO<sub>3</sub> in an antarctic ice core we have found four spikes of high concentration, three of which occur at depths which correspond roughly to the dates of known galactic supernovae (SN). The production of the observed NO<sub>3</sub> peaks by the hard X rays generated by a SN outburst (particularly Type II) does not seem inconceivable at least from the point of view of energy requirements and current SN models. We predict that the bright SN of 1006 will be 'observed' about 15 m beyond the end of the current core. If this is true, our identification of these spikes with SN will have important consequences for the theory of SN, atmospheric chemistry and transport, and even the dating of ice cores. (Auth.)

34-1747

**Ross Ice Shelf temperatures support a history of ice-sheet thickening.**

MacAyeal, D.R., et al. *Nature*, Dec. 13, 1979, 282(5740), p.703-705, 17 refs.

Thomas, R.H.

**Ice shelves, Ice melting, Ice cover thickness, Ice temperature, Antarctica—Ross Ice Shelf.**

The ice sheet in West Antarctica is grounded on a sub-sea level basin in the antarctic continental shelf. At the seaward margins, where ice thicknesses are reduced sufficiently to attain neutral buoyancy, floating ice shelves form. The two largest are the Ross and Ronne ice shelves. Because the depth of the continental shelf increases towards the center of the West Antarctic ice sheet, ice discharge could accelerate irreversibly until the grounded portion of the ice sheet had completely disappeared. The resistance to ice discharge provided by the ice shelves is the major factor preventing such a collapse. Geological evidence indicates that the extent of grounded ice in the West Antarctic has fluctuated widely during the Pleistocene, and complete removal of the ice sheet may have occurred during the Sangamon interglacial following a climatic warming, which was probably associated with a retreat of the ice-sheet seaward margins. One of the most active ice streams draining West Antarctica flows into the southeast corner of the Ross Ice Shelf. Surface observations in this area indicate that, either the ice shelf is thickening, or that there is appreciable melting from beneath ice shelf that is >500 km from the open sea. Such melting would strongly influence temperatures within the ice shelf, and here a temperature-depth profile from the ice shelf is used to estimate the basal regime. It is concluded that, for much of the southeast corner, basal freezing/melting rates have been near zero for the past few hundred years. This implies that, within this region, the ice shelf is thickening at approx 0.3 m/yr. (Auth.)

34-1748

**Annual report No.11; Contract N00014-76-C-0234; NR 307-252.**

Seattle, Washington. University. Department of Atmospheric Sciences, Dec. 1979, 33p., 12 refs.

**Sea ice, Thermodynamics, Mass balance, Ice deformation, Ice optics, Solar radiation, Ice edge, Oil spills, Pack ice, Ice heat flux.**

34-1749

**Feasibility study of land treatment of wastewater at a subarctic Alaskan location.**

Stetten, R.S., et al. MP 1268, Cornell Agricultural Waste Management Conference, 8th, Rochester, N.Y., 1976. Proceedings. Land as a waste management alternative, edited by R.C. Loehr, Ann Arbor, Mich., Ann Arbor Science, 1977, p.533-547. For another version see 31-1949. 10 refs.

Uiga, A.

**Waste treatment, Water pollution, Land reclamation, Subpolar regions, Subarctic landscapes, Tests, United States—Alaska.**

34-1750

**Installation of large thermal insulation structures.** [Montazh krupnorazmernykh teploizolatsionnykh konstruktsiy].

Khashev, V.M., et al. *Montazhnye i spetsial'nye raboty v stroitel'stve*, May 1979, No.5, p.18-19.

Sheigal, I.G.

**Construction materials, Pipeline insulation, Thermal insulation.**

34-1751

**Steel-reinforced concrete road bridge spans exceeding 100 m.** [Stal'zhelezobetonnyye proletnyye stroeniya avtomobilnykh mostov proletami bolee 100 m].

Rudomazin, N.N., et al. *Promyshlennoe stroitel'stvo*, May 1979, No.5, p.16-17. In Russian.

Nazarova, R.P.

**Concrete structures, Reinforced concretes, Roads, Bridges, Design, Discontinuous permafrost.**

34-1752

**Windows with double and triple layers of glass.** [Effektivnost' okon s dvoynym i troynym ostekleneniem]. Aleksandrov, I.U.P., et al. *Promyshlennoe stroitel'stvo*, July 1979, No.7, p.10-12. In Russian. 3 refs.

Nargizian, L.A., Savin, V.K., Bondarenko, G.P.

**Residential buildings, Windows, Walls, Heat loss, Microclimatology.**

34-1753

**Thermal insulation for light-weight roofs.** [Effektivnaya teploizolatsiya dlia blegchennot krovli]. Merkin, A.P., et al. *Promyshlennoe stroitel'stvo*, July 1979, No.7, p.12-16. In Russian. 3 refs.

Zelfman, M.I., Kunichan, G.I.

**Buildings, Roofs, Thermal insulation, Construction materials.**

34-1754

**Beneath the armor of ice.** [Pod ledovym pantsirem]. Mikhailovskii, A. *Morskoi sbornik*, July 1979, No.7, p.67-70. In Russian.

**Subglacial navigation, Submarines, Nuclear power, Arctic Ocean.**

34-1755

**Studying properties of G class cement and the "Permafrost" mixture according to the national standards.** [Issledovanie svoystv tsementa klassa G i smesi Permafrost po otechestvennomu standartu]. Khisov, A.A., *Neftianoe khoziaistvo*, June 1979, No.6, p.31-34. In Russian. 2 refs.

**Polar regions, Petroleum industry, Wells, Drilling, Winter concreting, Cements, Concrete strength, Frost resistance.**

34-1756

**Seasonal and long-term dynamics of vegetation near the Dzhankuat glacier (Central Caucasus).** [Sezonnaya i mnogoletnaya dinamika rastitel'nosti u lednika Dzhankuat (Tsentral'nyi Kavkaz)].

Turmanina, V.I., et al. *Moskovskoe obshchestvo i pyatyleti prirody. Bulletin. Otdel biologicheskii*, July-Aug. 1979, 84(4), p.64-75. In Russian with English summary. 7 refs.

Volodina, E.R.

**Glaciers, Periglacial processes, Alpine landscapes, Plant ecology, Ecosystems, USSR—Caucasus.**

34-1757

**Seasonal freezing of ground in the non-chernozem areas of the RFSFR and its mapping.** [Sezonnoe promerzanie gruntov Nechernozemnoi zony RFSFR i ego kartografirovaniye].

Tumel', N.V., et al. *Moscow. Universitet. Vestnik. Seriya 5 Geografiya*, Sep.-Oct. 1979, No.5, p.36-41. In Russian with English summary. 5 refs.

Snopkov, A.E.

**Soil freezing, Frost penetration, Snow cover effect, Seasonal freeze thaw, Mapping.**

34-1758

**Evaluating accumulative effects of a catastrophic avalanche in the Elbrus Mountain area.** [Otsenka akumulativnoi deiatel'nosti katastroficheskoi laviny v Priel'brus'e].

Zolotarev, E.A., et al. *Moscow. Universitet. Vestnik. Seriya 5 Geografiya*, Sep.-Oct. 1979, No.5, p.47-53. In Russian with English summary. 7 refs.

Salova, T.A., Troshkina, E.S.

**Avalanche erosion, Avalanche deposits, Avalanche mechanics, USSR—Caucasus.**

34-1759

**Water erosion of frozen rocks and the evaluation of thermoerosional danger.** [Razmyvaemost' merzlykh porod i printsipy otsenki termoerozionnoi opasnosti territorii].

Ershov, E.D., et al. *Moscow. Universitet. Vestnik. Seriya 4 Geologiya*, May-June 1979, No.3, p.67-76. In Russian. 5 refs.

Kuchukov, E.Z., Malinovskii, D.V.

**Permafrost weathering, Water erosion, Ground ice, Ice melting, Permafrost thermal properties.**

34-1760

**Genetic classification of rock streams.** [Geneticheskaya klassifikatsiya kurumov].

Tiurin, A.I. *Moscow. Universitet. Vestnik. Seriya 4 Geologiya*, May-June 1979, No.3, p.77-85. In Russian. 22 refs.

**Geocryology, Frost weathering, Rock streams, Alpine landscapes, Origin.**

34-1761

**CO<sub>2</sub>-climate sensitivity study with a mathematical model of the global climate.**

Manabe, S., et al. *Nature*, Nov. 29, 1979, 282(5738), p.491-493, 10 refs.

Stouffer, R.J.

**Climatology, Mathematical models, Sea ice, Ice cover thickness, Heat balance, Albedo.**

34-1762

**Tidal flexure of ice shelves measured by tiltmeter.** Stephenson, S.N., et al. *Nature*, Nov. 29, 1979, 282(5738), p.496-497, 11 refs.

Doake, C.S.M., Horsfall, J.A.C.

**Ice shelves, Ice surface, Measuring instruments, Ice sheets.**

A new design of tiltmeter has been used to measure the tidal bending of the Ronne Ice Shelf, Antarctica. By this means the point at which the ice sheet leaves the land and starts floating on the sea has been defined to within 600m. Monitoring this position in future should give an indication of the state of balance of the West Antarctic ice sheet, often considered to be unstable even if not actually disintegrating. The hydrostatic level meter is light and simple and can operate unattended while recording continuously for periods of several weeks. Observations at eight different sites on Rutford Ice Stream gave tidal records on ice more than 1,700 m thick and at points up to 600 km from the nearest open sea. (Auth.)

34-1763

**Statistical study of passage into Beaufort Sea via Point Barrow.**

Wilson, S.R.G., *Arctic Petroleum Operators Association, Calgary, Alta. Report*, Dec. 1977, APOA 113-1, 108p., 6 refs.

**Marine transportation, Ice navigation, Statistical analysis, Sea ice, Ice conditions, Environment simulation, Wind factors, Water depth.**

34-1764

**Time-dependent deformation of ice domes.** Hajdo, L.E., *International journal of solids and structures*, 1979, 15(3), p.261-267, 10 refs.

**Portable shelters, Ice (construction material), Ice deformation.**

34-1765

**Ice initiation in unmixed undraft cores in northeast Colorado cumulus congestus clouds.**

Heymsfield, A.J., et al. *Journal of the atmospheric sciences*, Nov. 1979, 36(11), p.2216-2229, 21 refs.

Knight, C.A., Dye, J.E.

**Cloud physics, Ice nuclei, Ice crystals, Particle size distribution.**

34-1766

**Charge separation associated with secondary ice crystal production.**

Hallett, J., et al. *Journal of the atmospheric sciences*, Nov. 1979, 36(11), p.2230-2235, 23 refs.

Saunders, C.P.R.

**Ice crystal growth, Ice electrical properties, Polarization (charge separation), Ice physics.**

34-1767

**Symposium on Human Settlements Planning and Development in the Arctic.**

United Nations. Economic Commission for Europe. Committee on Housing, Building and Planning. Godthaab, Greenland, 1978, c455p., In English and Russian.

**Utilities, Buildings, Cold weather construction, Health, Snow loads, Snowdrifts, Ice loads, Permafrost beneath structures, Mining, Foundations.**

Participants from Denmark, Canada, Norway, Sweden, Iceland, Finland, United States, and the USSR met in Godthaab in August, 1978 to address three major topics: Physical planning and layout of settlements; Programming, design and construction of engineering infrastructure facilities; and Programming, design and construction of housing and related social services facilities.

34-1768

**Mechanism of blasting massive frozen ground.** [K mekhanizmu vzryvnogo razrusheniya merzlykh gruntov].

Balbachan, I.P., *Gornyi zhurnal*, July 1979, No.7, p.32-34. In Russian. 3 refs.

**Blasting, Frozen rock temperature, Frozen fines, Sands, Frozen ground, Compressive properties, Analysis (mathematics).**

34-1769

**Determining optimal volume of strip-pit works for winter periods in the northeastern USSR.** [Opredelenie optimal'nogo ob'ema vskryshnykh rabot v zimniy period na Severo-Vostoke SSSR].

Potemkin, S.V., *Gornyi zhurnal*, June 1979, No.6, p.38-40. In Russian.

**Placer mining, Pits (excavations), Permafrost, Blasting, Economic analysis.**

- 34-1770**  
Special geomorphologic map for studying permafrost. (Spezializirovannaya geomorfologicheskaya karta dlia izucheniya geokriologicheskikh usloviy). Gavrilov, A.V., et al. *Geomorfologiya*, Apr.-June 1979, No.2, p.75-80. In Russian with English summary. 2 refs.  
Kondrat'eva, K.A., Piotrovskii, M.V.  
Geocryology, Surveys, Mapping, Swamps, Permafrost distribution, Engineering geology.
- 34-1771**  
Prefabricated plates of ground floor framing in residential buildings of the North. (Industrialnye plity tsokol'nogo perekrytiya v zhilykh domakh na Severe). Pikhovkin, V., et al. *Na stroikakh Rossii*, July 1979, No.7, p.38-39. In Russian.  
Shklyarov, N.  
Residential buildings, Permafrost beneath structures, Foundations, Ventilation, Permafrost control, Prefabrication, Plates, Reinforced concretes.
- 34-1772**  
Sectional, instead of situ-poured, cylindrical pumping stations. (Sbornye tsilindricheskie nasosnye vmesto monolitnykh). Podgornyi, I. *Na stroikakh Rossii*, July 1979, No.7, p.40-41. In Russian.  
Prefabrication, Concrete structures, Walls, Reinforced concretes, Panels, Permafrost beneath structures, Pumping stations.
- 34-1773**  
Methods of frozen ground excavation. (Effektivnye metody razrabotki merzlykh gruntov). Artemenko, M. *Na stroikakh Rossii*, May 1979, No.5, p.32-34, 61. In Russian.  
Frozen rock temperature, Frost protection, Snow cover effect, Excavation.
- 34-1774**  
Light metal structures for industrial buildings and their installation. (Legkie metallicheskie konstruktsii i vozvedenie iz nikh promyshlennyykh zdaniy). Abramovich, K., et al. *Na stroikakh Rossii*, June 1979, No.6, p.24-27. In Russian.  
Polonskii, L.  
Prefabrication, Modular construction, Panels, Metals.
- 34-1775**  
Planning and construction of Tynda. (Planirovka i zastroyka Tyndy). Traibman, G. *Na stroikakh Rossii*, June 1979, No.6, p.46-49. In Russian.  
Urban planning, Residential buildings, Industrial buildings, Permafrost beneath structures, Sporadic permafrost, Baykal Amur railroad.
- 34-1776**  
Arctic adaptations in plants. Savile, D.B.O. Canada. Department of Agriculture, Research Branch. Monograph No.6, Ottawa, Information Canada, 1972, 81p., Refs. p.78-81.  
Vegetation, Frost resistance, Acclimatization, Arctic landscapes, Polar regions.
- 34-1777**  
Proceedings of the Davos Seminar, September 1978. International Seminar on Mountain Forests and Avalanches, Davos, Switzerland, Sep. 25-28, 1978. Bern, Swiss Federal Institute for Snow and Avalanche Research (SFISAR), 1979, 258p., In English, German and French with German and English summaries. Refs. passim. For individual papers see 34-1777 through 34-1798.  
Forestry, Protective vegetation, Avalanche formation, Countermeasures, Mountains, Alpine landscapes, Revegetation, Meetings.
- 34-1778**  
Snow cover in forest stands. Keller, H.M., International Seminar on Mountain Forests and Avalanches, Davos, Switzerland, Sep. 25-28, 1978. Proceedings, Bern, SFISAR, 1979, p.17-29, In English with German summary. 33 refs.  
Snow cover distribution, Forest land, Snow accumulation, Snowmelt, Snow hydrology, Snowfall, Topographic features, Meteorological factors, Vegetation factors, Avalanche formation, Mountains.
- 34-1779**  
Snow accumulation and disappearance as influenced by elevation, aspect and vegetation type in the State of Hesse, Germany. Brechtel, H.M., et al. International Seminar on Mountain Forests and Avalanches, Davos, Switzerland, Sep. 25-28, 1978. Proceedings, Bern, SFISAR, 1979, p.31-42, 25 refs.  
Scheele, G.  
Snow accumulation, Snow melting, Vegetation factors, Altitude, Snow depth.
- 34-1780**  
Forest and snow cover. (La forêt et le manteau neigeux). Charlier, C., International Seminar on Mountain Forests and Avalanches, Davos, Switzerland, Sep. 25-28, 1978. Proceedings, Bern, SFISAR, 1979, p.43-61, In French. 4 refs.  
Snow cover effect, Forest canopy, Vegetation factors, Photography.
- 34-1781**  
Snow interception by pine stands in the Alpine foothills of Schwyz canton. (Schneeinterzeption in Fichtenbeständen in den Voralpen des Kantons Schwyz). Strobel, T., International Seminar on Mountain Forests and Avalanches, Davos, Switzerland, Sep. 25-28, 1978. Proceedings, Bern, SFISAR, 1979, p.63-79, In German with English summary. 3 refs.  
Snowfall, Forest canopy, Vegetation factors, Snow cover distribution, Snow water equivalent.
- 34-1782**  
Remote assessment of snow distribution and avalanche activity. (Fernmethoden zur Erfassung von Schneeverteilung und Lawinenaktivität). Rychetnik, J., International Seminar on Mountain Forests and Avalanches, Davos, Switzerland, Sep. 25-28, 1978. Proceedings, Bern, SFISAR, 1979, p.81-95, In German with English summary. 2 refs.  
Snow cover distribution, Remote sensing, Avalanche formation, Snow depth, Photogrammetric surveys, Mapping.
- 34-1783**  
Distribution and structure of snow cover under forest trees and full-grown forest. (Verteilung und Struktur der Schneedecke unter Waldbäumen und im Hochwald). In der Gand, H., International Seminar on Mountain Forests and Avalanches, Davos, Switzerland, Sep. 25-28, 1978. Proceedings, Bern, SFISAR, 1979, p.97-119, In German with English summary. 5 refs.  
Snow cover distribution, Snow cover structure, Avalanche formation, Forest land, Snowfall, Forest canopy, Mountains.
- 34-1784**  
Influence of snow cover on physiological processes in forest plants. (Der Einfluss der Schneedecke auf die Lebensvorgänge von Forstpflanzen). Tranquillini, W., International Seminar on Mountain Forests and Avalanches, Davos, Switzerland, Sep. 25-28, 1978. Proceedings, Bern, SFISAR, 1979, p.123-137, In German with English summary. 14 refs.  
Snow cover effect, Plant physiology, Trees (plants), Growth, Microclimatology, Photosynthesis, Frost resistance, Forest line.
- 34-1785**  
Effect of fertilization on winter drying of Scots pine. Kurkela, T., International Seminar on Mountain Forests and Avalanches, Davos, Switzerland, Sep. 25-28, 1978. Proceedings, Bern, SFISAR, 1979, p.139-143, 9 refs.  
Forest canopy, Drying, Growth, Plant ecology, Cold weather tests, Snow cover effect, Peat, Fertilizers.
- 34-1786**  
Distribution of snow and damages by snow in afforestation area in the subalpine zone at the "Sonnbach" near Hagen/Tyrol. Stern, R., International Seminar on Mountain Forests and Avalanches, Davos, Switzerland, Sep. 25-28, 1978. Proceedings, Bern, SFISAR, 1979, p.145-154, In English with German summary. 4 refs.  
Snow cover effect, Trees (plants), Damage, Deformation, Snow depth, Snow mechanics, Mountains.
- 34-1787**  
Snow forces on forest plants. Salm, B., International Seminar on Mountain Forests and Avalanches, Davos, Switzerland, Sep. 25-28, 1978. Proceedings, Bern, SFISAR, 1979, p.157-181, In English with German summary. 13 refs.  
Snow loads, Trees (plants), Deformation, Snow mechanics, Protective vegetation, Avalanche formation, Snow cover effect.
- 34-1788**  
Bending of young larch stems due to snow pressure. (Über das Abbiegen von Stämmen junger Lärchen durch Schneedruck). Frey, W., International Seminar on Mountain Forests and Avalanches, Davos, Switzerland, Sep. 25-28, 1978. Proceedings, Bern, SFISAR, 1979, p.183-203, In German with English summary. 3 refs.  
Snow loads, Trees (plants), Deformation, Snow cover effect, Snow depth, Snow mechanics.
- 34-1789**  
Deformation and damage to forest plants by snow forces. Wakabayashi, R., International Seminar on Mountain Forests and Avalanches, Davos, Switzerland, Sep. 25-28, 1978. Proceedings, Bern, SFISAR, 1979, p.205-209, 22 refs.  
Snow loads, Trees (plants), Deformation, Damage, Snow cover effect, Slope orientation, Snow accumulation.
- 34-1790**  
Assessment and analysis of snow breakage in fir trees in the Pfalz Forest, 1968 and 1975. (Erfassung und Analyse des Kiefern-schneebruchs 1968 und 1975 im Pfälzer Wald). Lessei, A., International Seminar on Mountain Forests and Avalanches, Davos, Switzerland, Sep. 25-28, 1978. Proceedings, Bern, SFISAR, 1979, p.211-215, In German with English summary.  
Trees (plants), Damage, Avalanche formation, Snow loads, Snow cover effect.
- 34-1791**  
Forest and avalanches. (Wald und Lawinen). De Quervain, M., International Seminar on Mountain Forests and Avalanches, Davos, Switzerland, Sep. 25-28, 1978. Proceedings, Bern, SFISAR, 1979, p.219-239, In German with English summary. 2 refs.  
Avalanche formation, Forest land, Trees (plants), Damage, Deformation, Slope orientation, Protection, Models.
- 34-1792**  
Avalanche frequency and risk estimation in forest sites. Föhn, P.M.B., International Seminar on Mountain Forests and Avalanches, Davos, Switzerland, Sep. 25-28, 1978. Proceedings, Bern, SFISAR, 1979, p.241-254, In English with German summary. 10 refs.  
Avalanche formation, Trees (plants), Damage, Statistical analysis, Revegetation, Forestry.
- 34-1793**  
Some promising afforestation tests based on the laying out of logs on avalanche sites. Wakabayashi, R., International Seminar on Mountain Forests and Avalanches, Davos, Switzerland, Sep. 25-28, 1978. Proceedings, Bern, SFISAR, 1979, p.255-260, 1 ref.  
Avalanche formation, Countermeasures, Latticed structures, Revegetation.
- 34-1794**  
Aims and preliminary results of French protective reforestation at the tree line on abandoned alpine pastures (Southern French Alps). (Objectifs et premiers résultats des expériences françaises de reboisement de protection à la limite de la forêt sur les alpages délaissés (Alpes françaises du Sud)). Mullenbach, P., International Seminar on Mountain Forests and Avalanches, Davos, Switzerland, Sep. 25-28, 1978. Proceedings, Bern, SFISAR, 1979, p.261-278, In French with German and English summaries.  
Forestry, Revegetation, Protective vegetation, Alpine landscapes, Topographic effects, Climatic factors, Slope orientation, Mountain soils, Forest lines.
- 34-1795**  
Ecosystem of avalanche protection forests. (Ökosystem Lawinenschutzwald). Mayer, H., International Seminar on Mountain Forests and Avalanches, Davos, Switzerland, Sep. 25-28, 1978. Proceedings, Bern, SFISAR, 1979, p.281-299, In German with English summary. 23 refs.  
Avalanche formation, Countermeasures, Forest ecosystems, Protective vegetation, Forestry.

- 34-1796**  
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- 34-1797**  
Forestry, Protective vegetation, Avalanche formation, Countermeasures, Revegetation, Mountains.
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- 34-1799**  
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- 34-1800**  
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Economic development, Ships, Sea ice, Ice navigation, Research projects.
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- 34-1803**  
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- 34-1804**  
Damron, F.J.  
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- 34-1804**  
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- 34-1805**  
Hays, M.J.  
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- 34-1805**  
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- 34-1806**  
Cryogenic soils, Taiga, Alpine landscapes, Alpine tundra, Forest tundra, Soil microbiology, Swamps, Meadow soils, Steppes, Soil chemistry, Thermal regime.
- 34-1806**  
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- 34-1807**  
Gadzhiev, I.M., Klenov, B.M.  
Taiga, Landscape types, Soil microbiology, Cryogenic soils, Podsol, Soil chemistry.
- 34-1807**  
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- 34-1808**  
Gantimurova, N.I.  
Cryogenic soils, Soil microbiology, Landscape types, Bibliographies, Swamps, Steppes, Meadow soils, Soil temperature.
- 34-1808**  
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- 34-1809**  
Cryogenic soils, Soil microbiology, Soil chemistry, Nutrient cycle, Soil profiles.
- 34-1809**  
Biochemical productivity in soils of some biogeocenoses in the Baraba Plain, subject to continuous cultivation. [Biokhimicheskaia produktivnost' pochv riada biogeotsenozov Barabinskoi nizmennosti v usloviakh nepreryvno kul'tivirovaniia]. Gantimurova, N.I., Mikrobynye assotsiatsii i ikh funktsionirovanie v pochvakh Zapadnoi Sibiri (Microbic associations and their functions in the West Siberia soils) edited by I.L. Klevenskaia, Novosibirsk, Nauka, 1979, p.87-107, In Russian. 6 refs.
- 34-1810**  
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- 34-1810**  
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- 34-1811**  
Khmelev, V.A.  
Alpine landscapes, Soil microbiology, Alpine tundra, Forest tundra, Cryogenic soils, USSR—Altai Mountains.
- 34-1811**  
Effect of development on the biologic activity of chernozems and chernozem-meadow alpine soils of the Altai. [Vlianie osvoeniia na biologicheskuiu aktivnost' chernozemov i chernozemno-lugovykh pochv gornogo Altaiia]. Gauert, V.I., Mikrobynye assotsiatsii i ikh funktsionirovanie v pochvakh Zapadnoi Sibiri (Microbic associations and their functions in the West Siberia soils) edited by I.L. Klevenskaia, Novosibirsk, Nauka, 1979, p.154-165, In Russian. 14 refs.
- 34-1812**  
Alpine landscapes, Cryogenic soils, Meadow soils, Soil microbiology, USSR—Altai Mountains.
- 34-1812**  
Temperature and humidity effect on biological nitrogen fixation in leached chernozem with different organic additives. [Deistvie temperatury i vlazhnosti na protsess biologicheskoi fiksatsii azota v vyschelochem chernozeme s razlichnymi organicheskimi dobavkami]. Mozzherin, N.M., Mikrobynye assotsiatsii i ikh funktsionirovanie v pochvakh Zapadnoi Sibiri (Microbic associations and their functions in the West Siberia soils) edited by I.L. Klevenskaia, Novosibirsk, Nauka, 1979, p.174-178, In Russian. 3 refs.
- 34-1813**  
Cryogenic soils, Soil microbiology, Soil chemistry, Nutrient cycle, Chernozem.
- 34-1813**  
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- 34-1814**  
Alpine landscapes, Cryogenic soils, Soil microbiology, Forest soils, Soil chemistry, USSR—Altai Mountains.
- 34-1814**  
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- 34-1815**  
Kopanev, I.D., ed.  
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- 34-1815**  
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Kopanev, I.D., Shver, T.A.  
Meteorological data, Data processing, Construction, Design, Climatology.
- 34-1816**  
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- 34-1817**  
Kukhtina, L.P.  
Meteorological data, Data processing, Construction, Design, Buildings, Heat loss, Microclimatology, Wind factors.
- 34-1817**  
Building code requirements concerning ice loads on hydraulic structures. [O trebovaniiax SNIiPa po opredeleniiu ledovykh nagruzok na gidrotekhnicheskie sooruzheniia]. Kukhtina, L.P., Leningrad, Glavnaia geofizicheskaya observatoriia. Trudy, 1979, Vol.425, p.17-20, In Russian. 5 refs.
- 34-1818**  
Hydraulic structures, Ice loads, Building codes.
- 34-1818**  
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- 34-1819**  
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- 34-1820**  
Mytarev, M.N.  
Ice loads, Meteorological data, Weather forecasting, Icing.
- 34-1820**  
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Sokolova, S.N.  
Icing, Ice accretion, Hoarfrost, Ice density, Topographic effects.
- 34-1821**  
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- 34-1822**  
Hoarfrost, Icing, Ice accretion, Topographic factors.

- 34-1822**  
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Results of temperature measurements in Vostok boreholes. (Rezultaty termometrii v skvazhinakh na stantsii Vostok). Vostretsov, R.N., et al. *Sovetskaya antarkticheskaya ekspeditsiya. Informatsionnyy byulleten'*, 1979, No.99, p.25-31. In Russian. 7 refs.
- 34-1826**  
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Glacier echo sounding studies around Molodezhnaya. (Raboty po radiolokatsionnomu zondirovaniyu lednikov v raione Molodezhnoy). Trepov, G.V., et al. *Sovetskaya antarkticheskaya ekspeditsiya. Informatsionnyy byulleten'*, 1979, No.99, p.35-38. In Russian. 1 ref.
- 34-1828**  
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Snow measurements on the antarctic shelf ice. (O snegomernykh nabludeniakh na antarkticheskome priपाaj). Kozlovskiy, A.M., *Sovetskaya antarkticheskaya ekspeditsiya. Informatsionnyy byulleten'*, 1979, No.99, p.74-77. In Russian. 8 refs.
- 34-1831**  
Time effect on the strength and service life of winter laying of silicate bricks using potash and sodium nitrate as cement additives. (Vliyanie vozrasta na prochnost' i dolgovechnost' zimnei kladki iz silikatnogo kirpicha na rastvorakh s potashom i nitritom natriya). Kotov, I.T., *Prochnost' krupnopanelykh i kamennykh konstruktov* (Strength of large-panel and stone structures) edited by S.A. Sementsov and V.A. Kameiko. Moscow, Stroizdat, 1972, p.224-236. In Russian. DLC TA670.P7
- 34-1832**  
Effect of compression on the strength of brickwork built in freezing weather. (Vliyanie obzhatiya na prochnost' zimnei kladki). Kotov, I.T., *Prochnost' krupnopanelykh i kamennykh konstruktov* (Strength of large-panel and stone structures) edited by S.A. Sementsov and V.A. Kameiko. Moscow, Stroizdat, 1972, p.236-237. In Russian. DLC TA670.P7
- 34-1833**  
Allowing for temperature effect when designing large panel buildings. (Uchet temperaturnykh vozdleystviy pri proektirovani krupnopanelykh zdaniy). Emel'yanov, A.A., Moscow. *Tsentral'nyy nauchno-issledovatel'skiy institut stroitel'nykh konstruktov. Trudy*, 1970, Vol.10, p.25-89. In Russian. 10 refs. DLC TH441.U26
- 34-1834**  
Selecting design values of temperature when calculating buildings for thermal and moisture effects and settling. (Vybor raschetnykh znachenii temperatur pri raschetakh konstruktiv zdaniy na temperaturno-vlazhnostnye vozdleystviya i usadku). Emel'yanov, A.A., Moscow. *Tsentral'nyy nauchno-issledovatel'skiy institut stroitel'nykh konstruktov. Trudy*, 1970, Vol.10, p.90-119. In Russian. 4 refs. DLC TH441.U26
- 34-1835**  
Large panel buildings, Concrete structures, Walls, Thermal stresses, Soil water migration, Foundations, Settlement (structural), Design.
- 34-1836**  
Operating large dumpers at the "Tsentral'nyy" mine, the "Apatit" departure yard. (Eksploatsatsiya bol'shegruznykh avtosamovolov na rudnike "Tsentral'nyy" PO "Apatit"). Kolesnikov, V.G., et al. *Gornyy zhurnal*, Sep. 1979, No.9, p.17-18. In Russian.
- 34-1837**  
New technology of recovering crushed ore when mining valuable metals at subzero temperatures. (Novaya tekhnologiya izvlecheniya poter' otbitoi rudy pri razrabotke tsennyykh rud v usloviyakh otritsatel'nykh temperatur). Popov, N.I., et al. *Gornyy zhurnal*, Sep. 1979, No.9, p.22-24. In Russian. 4 refs.
- 34-1838**  
Using "ifzanite" explosives in the Noril'sk Mining Concern. (Primeneniye ifzanitov na Noril'skom GMK). Mamashev, I.L.P., et al. *Gornyy zhurnal*, Sep. 1979, No.9, p.29-30. In Russian.
- 34-1839**  
30,000-yr isotope climatic record from antarctic ice. (Lorius, C., et al. *Nature*, Aug. 23, 1979, 280(5724), p.644-648, 32 refs.
- 34-1840**  
Impact of CO2 on cooling of snow and water surfaces. (Choudhury, B., et al. *Nature*, Aug. 23, 1979, 280(5724) p.668-671, 27 refs.
- 34-1841**  
Ice cores, Ice sheets, Isotope analysis, Snow accumulation, Ice dating, Climate.
- 34-1842**  
Ice movements and deglaciation of the central parts of Saltfjellet, Nordland, north Norway. (Isbevegelse og isavsmelting i den sentrale delen av Saltfjellet, Nordland, Nord-Norge). Sveian, H., et al. *Trodheim. Norges geologiske undersokelse. Bulletin*, 1979, No.49, p.1-20. In Norwegian with English summary. 19 refs.
- 34-1843**  
Glacial geology, Glacial lakes, Moraines, Ice dams.
- 34-1844**  
Snow composition, Snow impurities, Atmospheric circulation.



34-1843

Nondestructive testing of in-service highway pavements in Maine.

Smith, N., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, Apr. 1979, CR 79-6, 22p. ADA-069 817.

Eaton, R.A., Stubstad, J.  
**Roads, Cold weather tests, Pavements, Bearing strength, Flexural strength.**

Nondestructive repetitive plate bearing (RPB) tests were conducted on various test sections in state highways in Maine during April 13-15, 1976. The RPB test consists of making resilient surface deflection measurements during repetitive loadings at various radii from the load plate. The pavement system stiffness was calculated, and the resilient modulus values for the various pavement layers were determined with the Chevron computer program for a layered elastic system. A thawed analysis using nondimensional deflection curves for the various sections provided a guide to the susceptibility of the pavement systems to surface failure and pothole development. Some comparisons between stabilized and nonstabilized aggregate and soil were made with calculated stiffness values. The moduli of the various materials were also compared. The residual surface deflections during testing for several pavement systems indicated a linear logarithmic relationship with number of load applications. A relationship between the modulus of the asphalt cement concrete pavement and pavement temperature was developed for the limited temperature range during the testing.

34-1844

Lomonosov Ridge Experiment: Lorex 79.

Weber, J.R., *American Geophysical Union. Transactions*, Oct. 16, 1979, 60(42), p.715-721, 5 refs.

**Gravimetric prospecting, Drift stations, Sea ice, Seismic surveys, Oceanographic surveys.**

34-1845

Application of recent results in functional analysis to the problem of water tables.

Nakano, Y., *Advances in water resources*, Dec. 1979, Vol.2, MP 1269, p.185-190, 7 refs.

**Water table, Boundary value problems, Analysis (mathematics).**

The traditional viewpoint in hydrology and soil physics purports that water tables appearing in porous media described by Darcy's law and the extended Darcy's law are not singular surfaces. Several particular solutions in which singularities occur are presented as counter-examples to the traditional viewpoint and as evidence supporting the new theory that water tables are generally singular surfaces.

34-1846

Steady state temperature profile on a temperature plate in a forced convection flow.

Hirata, T., et al, *International journal of heat and mass transfer*, Oct. 1979, 22(10), p.1425-1443, In English with French, German, and Russian summaries. 39 refs.

Gilpin, R.R., Cheng, K.C., Gates, E.M.  
**Ice growth, Laminar flow, Turbulent flow, Convection, Temperature effects, Ice cover thickness.**

34-1847

Research annual report 1978-79.

Alaska. University, Fairbanks, 1979, 129p.

**Research projects.**

34-1848

Investigations of surface-wave dispersion in an inhomogeneous medium by the finite difference method.

Acharya, H.K., et al, *Seismological Society of America. Bulletin*, Oct. 1978, 68(5), p.1381-1386, 11 refs.

Bentley, C.R.

**Ice sheets, Wave propagation, Ice density, Analysis (mathematics), Antarctica—Marie Byrd Land.**

Surface-wave dispersion for the ice sheet of Marie Byrd Land, in which velocity and density increase continuously with depth and gradients near the surface are steep, has been computed by solving the equations of motion directly by finite differences. No simplifying assumptions or approximations about parameter variations with depth have been made. Computer results agree well with observed data without the introduction of any anisotropy, as was needed in a previous analysis (Acharya, 1972). Tests of the assumptions made in the previous analysis show that (a) the approximation Poisson's ratio = 1/4 introduces no significant error, even though Poisson's ratio actually varies from 1/4 to 1/3 in the upper part of the ice sheet, and (b) the assumption of a constant density, required if one is to separate compressional and shear-wave displacement potentials, is unsatisfactory. (Auth.)

34-1849

Power supply on construction sites of hydroelectric power plants. [Ratsional'naya organizatsiya elektrosnabzheniya stroitel'nykh ploshchadok GES].

Vetis, I.E., *Energeticheskoe stroitel'stvo*, Nov. 1979, No.11, p.41-44, In Russian.

**Industrial buildings, Electric power, Site accessibility, Cold weather construction.**

34-1850

Organizing the preliminary period of the Kolyma hydroelectric power plant construction. [Organizatsiya podgotovitel'nogo perioda stroitel'stva Kolym'skoi GES].

Pavlov, B.N., et al, *Energeticheskoe stroitel'stvo*, Nov. 1979, No.11, p.44-47, In Russian.

Frumkin, N.V.

**Electric power, Industrial buildings, Permafrost beneath structures, Construction materials, Transportation, USSR—Kolyma River.**

34-1851

Improving the design of supports for overhead power lines of and exceeding 500 kv. [Puti sovershenstvovaniya konstruktivnykh opor dlia VL 500 kV i vyshe].

Peterson, L.L., et al, *Energeticheskoe stroitel'stvo*, Nov. 1979, No.11, p.48-51, In Russian. 2 refs.

Kurnosov, A.I., Gabliia, I.U.A.

**Power line supports, Foundations, Metals, Concrete structures, Permafrost beneath structures, Swamps, Design.**

34-1852

Proceedings of the first all-union symposium Biosphere and Man. [Materialy].

Vsesoiuznyi simpozium Chelovek i biosfera, 1st, Moscow, Sept. 24-28, 1973, Moscow, Nauka, 1975, 335p.

In Russian. For selected papers see 34-1853 through 34-1862.

Kovda, V.A., ed.

DLC QH77.R8V792

**Taiga, Landscape types, Cryogenic soils, Soil erosion, Soil chemistry, Alpine landscapes, Swamps, Peat, Land reclamation, Environmental protection.**

34-1853

Biologic productivity and chemical element cycles in spruce-green moss central and northern taiga of the Komi Autonomous Soviet Socialist Republic. [Biologicheskaya produktivnost' i osnovnye pokazateli krugovorota khimicheskikh elementov v el'nikakh-zelenomoshnikakh srednei i severnoi taigi Komi ASSR].

Zaboeva, I.V., et al, Vsesoiuznyi simpozium Chelovek i biosfera, 1st, Moscow, Sept. 24-28, 1973. Materialy (Proceedings of the first all-union symposium Biosphere and Man) edited by V.A. Kovda, Moscow, Nauka, 1975, p.81-82, In Russian.

Rusanova, G.V., Sloboda A.V.

DLC QH77.R8V792

**Taiga, Cryogenic soils, Mosses, Biomass, Soil chemistry, Chemical composition.**

**Taiga, Cryogenic soils, Mosses, Biomass, Soil chemistry, Chemical composition.**

**Taiga, Cryogenic soils, Mosses, Biomass, Soil chemistry, Chemical composition.**

**Taiga, Cryogenic soils, Mosses, Biomass, Soil chemistry, Chemical composition.**

**Taiga, Cryogenic soils, Mosses, Biomass, Soil chemistry, Chemical composition.**

**Taiga, Cryogenic soils, Mosses, Biomass, Soil chemistry, Chemical composition.**

**Taiga, Cryogenic soils, Mosses, Biomass, Soil chemistry, Chemical composition.**

**Taiga, Cryogenic soils, Mosses, Biomass, Soil chemistry, Chemical composition.**

**Taiga, Cryogenic soils, Mosses, Biomass, Soil chemistry, Chemical composition.**

**Taiga, Cryogenic soils, Mosses, Biomass, Soil chemistry, Chemical composition.**

**Taiga, Cryogenic soils, Mosses, Biomass, Soil chemistry, Chemical composition.**

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**Taiga, Cryogenic soils, Mosses, Biomass, Soil chemistry, Chemical composition.**

**Taiga, Cryogenic soils, Mosses, Biomass, Soil chemistry, Chemical composition.**

34-1856

Microelement variations in peat-bog soils of the northwestern Russian Soviet Federated Socialist Republic during land development. [Izmenenie soderzhanii mikroelementov v torfiano-bolotnykh pochvakh severo-zapadnoi zony RSFSR v protsesse ikh osvoeniia].

Zavgorodniia, R.E., et al, Vsesoiuznyi simpozium Chelovek i biosfera, 1st, Moscow, Sept. 24-28, 1973. Materialy (Proceedings of the first all-union symposium Biosphere and Man) edited by V.A. Kovda, Moscow, Nauka, 1975, p.126-127, In Russian.

Toikka, M.A., Kalmykov, G.S.

DLC QH77.R8V792

**Swamps, Peat, Soil chemistry, Land reclamation.**

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**Swamps, Peat, Soil chemistry, Land reclamation.**

**Swamps, Peat, Soil chemistry, Land reclamation.**

**Swamps, Peat, Soil chemistry, Land reclamation.**

34-1862

**Geobotanical maps and plant conservation provisions for economically developing areas of Central and Eastern Siberia.** (Geobotanicheskie karty i organizatsiya okhrany rastitel'nosti osvaivayemykh raiionov Srednei i Vostochnoi Sibiri).  
Belov, A.V., Vsesoiuznyi simpozium Chelovek i biosfera, 1st, Moscow, Sept. 24-28, 1973. Materialy (Proceedings of the first all-union symposium Biosphere and Man) edited by V.A. Kovda, Moscow, Nauka, 1975. p.206-207. In Russian.  
DLC QH77.R8V792  
**Cryogenic soils, Vegetation patterns, Maps, Geobotanical interpretation, Environmental protection.**

34-1863

**Mountain landscape protection in Siberia.** (Okhrana gornyykh landshaftov Sibiri).  
Krylov, G.V., ed. Novosibirsk, Nauka, 1973. 251p. In Russian. For selected papers see 34-1864 through 34-1876. Refs. passim.  
DLC QH77.R8049

**Alpine tundra, Taiga, Steppes, Environmental protection, Landscape types, Mountain soils, Soil microbiology, Cryogenic soils, Soil erosion, Revegetation, Microclimatology, Biomass.**

34-1864

**Scientific approaches to the problems of mountain landscape preservation.** (Nauchnye podkhody k problemam okhrany gornyykh landshaftov).  
Fadееva, N.V., et al. Okhrana gornyykh landshaftov Sibiri (Mountain landscape protection in Siberia) edited by Krylov, G.V., Novosibirsk, Nauka, 1973. p.16-24. In Russian. 9 refs.  
Aleksandrova, T.D., Mukhina, L.L., Preobrazhenskii, V.S.  
DLC QH77.R8049  
**Environmental protection, Landscape types, Taiga, Steppes, Soil erosion, USSR—Baykal Lake.**

34-1865

**Peculiarities of mountain landscapes in the Krasnoyarsk area and their protection.** (Osobennosti gornyykh landshaftov Krasnoyarskogo kraia i ikh okhrana).  
Kirillov, M.V., Okhrana gornyykh landshaftov Sibiri (Mountain landscape protection in Siberia) edited by Krylov, G.V., Novosibirsk, Nauka, 1973. p.24-26. In Russian.  
DLC QH77.R8049  
**Alpine landscapes, Environmental protection, Alpine tundra, Taiga.**

34-1866

**Small scale geobotanical mapping as a basis for scientific organization of Alpine vegetation protection.** (Melkomasshtabnoe geobotanicheskoe kartografirovaniye kak osnova nauchnoi organizatsii okhrany gornoi rastitel'nosti).  
Belov, A.V., Okhrana gornyykh landshaftov Sibiri (Mountain landscape protection in Siberia) edited by Krylov, G.V., Novosibirsk, Nauka, 1973. p.34-37. In Russian.  
DLC QH77.R8049  
**Alpine landscapes, Environmental protection, Alpine tundra, Taiga, Mapping, Geobotanical interpretation.**

34-1867

**Scientific and practical significance of studying partial inhomogeneity of mountain taiga soils.** (Nauchnoe i prakticheskoe znachenie izucheniya partial'noi neodnorodnosti lesnykh pochv chernyevoi taigi).  
Taranov, S.A., Okhrana gornyykh landshaftov Sibiri (Mountain landscape protection in Siberia) edited by Krylov, G.V., Novosibirsk, Nauka, 1973. p.59-66. In Russian. 8 refs.  
DLC QH77.R8049  
**Taiga, Cryogenic soils, Alpine landscapes, Environmental protection, Biomass, Soil microbiology, Soil chemistry.**

34-1868

**Utilization and protection of mountain forests.** (Is-pol'zovanie i okhrana gornyykh lesov).  
Beliak, V.I., et al. Okhrana gornyykh landshaftov Sibiri (Mountain landscape protection in Siberia) edited by Krylov, G.V., Novosibirsk, Nauka, 1973. p.67-70. In Russian.  
Voloshnikov, V.A.  
DLC QH77.R8049  
**Alpine landscapes, Forest land, Environmental protection, Soil erosion, Forest fires.**

34-1869

**Rational utilization of Ural Mountain forests.** (Osobennosti ratsional'nogo ispol'zovaniya gornyykh lesov Urala).  
Zubareva, R.S., et al. Okhrana gornyykh landshaftov Sibiri (Mountain landscape protection in Siberia) edited by Krylov, G.V., Novosibirsk, Nauka, 1973. p.70-78. In Russian. 17 refs.  
Kolesnikov, B.P., Smolonogov, E.P., Fil'tze, E.M.  
DLC QH77.R8049  
**Environmental protection, Forest land, Landscape types, Taiga, USSR—Ural Mountains.**

34-1870

**Microclimatic variations and pine forest revegetation in relation to economic development of the Sayan low mountain belt.** (Izmeneniya mikroklimate i vozobnovleniya khvoynykh porod v svyazi s promyshlennym osvoeniem lesov nizkogornogo potasa Saiana).  
Gaas, A.A., Okhrana gornyykh landshaftov Sibiri (Mountain landscape protection in Siberia) edited by Krylov, G.V., Novosibirsk, Nauka, 1973. p.78-87. In Russian. 10 refs.  
DLC QH77.R8049

**Environmental protection, Mountain soils, Taiga, Revegetation, Landscape types, Microclimatology, Biomass, USSR—Sayan Mountains.**

34-1871

**Utilization of mountain forests in the Kuznetskiy Basin.** (Is-pol'zovanie gornyykh lesov Kuzbassai).  
Kalinn, A.M., Okhrana gornyykh landshaftov Sibiri (Mountain landscape protection in Siberia) edited by Krylov, G.V., Novosibirsk, Nauka, 1973. p.87-92. In Russian.  
DLC QH77.R8049  
**Forestry, Taiga, Revegetation, Mountain soils, Environmental protection.**

34-1872

**Forest protection in the northern Lake Baykal Basin.** (Sostoianie lesov severnoi chasti basseina Baikala i voprosy ikh okhrany).  
Tkachenko, A.L., Okhrana gornyykh landshaftov Sibiri (Mountain landscape protection in Siberia) edited by Krylov, G.V., Novosibirsk, Nauka, 1973. p.93-98. In Russian. 2 refs.  
DLC QH77.R8049  
**Taiga, Cryogenic soils, Environmental protection, Human factors, USSR—Baykal Lake.**

34-1873

**Role of mountain forests of eastern Transbaikalia and the Lake Baykal problem.** (Rol' gornyykh lesov vostochnoi Zabaikal'ia v probleme Baikala).  
Panarin, I.L., Okhrana gornyykh landshaftov Sibiri (Mountain landscape protection in Siberia) edited by Krylov, G.V., Novosibirsk, Nauka, 1973. p.98-102. In Russian. 3 refs.  
DLC QH77.R8049  
**Mountain soils, Cryogenic soils, Taiga, Environmental protection, Landscape types, USSR—Transbaikalia.**

34-1874

**Resistance of some West Siberian forests.** (Ustoi-chivost' nekotorykh lesnykh kompleksov Zapadnoi Sibiri).  
Taran, I.V., Okhrana gornyykh landshaftov Sibiri (Mountain landscape protection in Siberia) edited by Krylov, G.V., Novosibirsk, Nauka, 1973. p.103-107. In Russian. 5 refs.  
DLC QH77.R8049

**Mountain soils, Cryogenic soils, Taiga, Landscape types, Environmental protection.**

34-1875

**Rational use and preservation of Magadan area forests.** (Ratsional'noe ispol'zovanie i okhrana lesov Magadanskoi oblasti).  
Snytkin, G.V., Okhrana gornyykh landshaftov Sibiri (Mountain landscape protection in Siberia) edited by Krylov, G.V., Novosibirsk, Nauka, 1973. p.119-125. In Russian. 5 refs.  
DLC QH77.R8049

**Permafrost distribution, Mountain soils, Cryogenic soils, Taiga, Landscape types, Environmental protection, USSR—Magadan.**

34-1876

**Protection of mountain forests as a dependable water supply basis of Transbaikalia.** (Okhrana gornoi lesnoi rastitel'nosti kak osnova dolgovremennogo vodopobezhechniya Zabaikal'ia).  
Tsyganok, V.L., Okhrana gornyykh landshaftov Sibiri (Mountain landscape protection in Siberia) edited by Krylov, G.V., Novosibirsk, Nauka, 1973. p.135-138. In Russian.  
DLC QH77.R8049

**Water supply, Forest land, Taiga, Environmental protection, USSR—Transbaikalia.**

34-1877

**Economic analysis of the environmental impact of highway deicing salts.**  
Murray, D.M., *Transportation research record*, 1977, No.647, p.29-40. Includes discussions by M.C. Belangie, C.C. Sy, and R. Bremner and a closure by the author. 41 refs.  
**Snow removal, Ice removal, Chemical ice prevention, Salting, Environmental impact, Economic analysis.**

34-1878

**Impact of highway deicing salts on rural stream water quality.**  
Champagne, D.M., *Transportation research record*, 1977, No.647, p.47-52. 5 refs.  
**Roads, Salting, Ice removal, Water pollution.**

34-1879

**Urea as a deicing agent.** (Urea som avsningspreparat).  
Johansson, A., *Cement och betong*, Sep. 1970, 45(3), p.229-308. In Swedish.  
**Concrete admixtures, Chemical ice prevention, Urea.**

34-1880

**Methane addition to an Arctic lake in winter.**  
Welch, H.E., et al., *Limnology and oceanography*, Jan. 1980, 25(1), p.100-113. 20 refs.  
Rudd, J.W.M., Schindler, D.W.  
**Water chemistry, Gas inclusions, Oxygen, Methane, Ice cover effect.**

34-1881

**Ice-sheet glaciology.**  
Drewry, D., *Progress in physical geography*, Sep. 1979, 3(3), p.313-328. Numerous refs.  
**Research projects, Ice sheets, Radio echo soundings, Drilling, Spacecraft, Ice composition, Models.**  
The author reviews the glaciological literature since 1970, analyzing various methods of exploiting ice sheets, new methods, improved older methods, useful ones no longer actively pursued, mainly due to lack of funding. He cites some of the results and successes of the various methods and mentions several of the highly organized research projects currently in progress both in Antarctica and in Greenland.

34-1882

**On upwelling driven by the melt of ice shelves and tidewater glaciers.**  
Greisman, P., *Deep-sea research*, Sep. 1979, 26(9A), p.1051-1065. 18 refs.  
**Upwelling, Glacier melting, Ice shelves, Water temperature.**

34-1883

**Polar research.**  
Turner, M.D., *Geotimes*, Feb. 1980, 25(2), p.43-44.  
**Glacier thickness, Ice sheets, Permafrost, Drill core analysis.**  
Antarctic and Arctic research studies of the past year are reviewed. Preliminary findings include the following: A rich and varied microbial flora has been found in rocks of the dry valleys. Major outlet glaciers from the East Antarctic ice sheet, such as the Byrd and Darwin, were found to be 1,000 m thicker near their mouths. Eighteen different amino acids, several of them unknown from modern terrestrial sources, were identified in well-preserved and uncontaminated antarctic carbonaceous meteorites. Geochemical investigations of the antarctic ice sheets have shown that fluctuations in the concentrations of nitrate and ammonium ions, from ice and snow layers of known dates, can be correlated with observed solar activity. In addition to the above studies, a field party of some 40 scientists from 7 countries worked in the Ellsworth Mountains, and New Zealand scientists drilled a deep core hole in western McMurdo Sound, using annual sea ice as a drilling platform. West Germany is conducting its first land-based antarctic expedition in nearly 40 yr.

34-1884

**Problems of the Arctic and the Antarctic, collection of articles, Vol.45, 1974.**  
Treshnikov, A.F., ed. New Delhi, Amerind Publishing Co., 1979, 171p. TT 75-52083. Translation of Problemy Arktiki i Antarktika, sbornik statei, vyp.45, 1974. Refs. passim. For selected articles see 34-1885 through 34-1896 or B-22705 and I-22704.  
**Sea ice, Ice cover strength, Hydrodynamics, Glacial hydrology, Sea level, Climatic changes, Research projects.**

This volume includes papers devoted to the study and investigation of different aspects of arctic and antarctic climatology. The first four papers deal with glacial water reserve and discharge in the Arctic. Arctic cooling, large-scale sea level oscillations in the Northern Hemisphere and high relative humidity in the Arctic. Five papers are devoted to atmospheric studies in the polar regions. They cover such topics as cyclic oscillations, conjunction of certain centers of atmospheric action, characteristics of total radiation, change in wind speed and direction during geomagnetic disturbances and the relation of ionospheric troughs and plasma pause in the afternoon sector. There are three papers on studies relating to the phase composition of ice, forecasting its flexural strength, and size determination of ice floes. Besides, there is a paper on the distribution of microscopic algae in Davis Sea fast ice. (Auth. mod.)

34-1885

Water resources of glaciers and glacial discharge in the Arctic.

Govorukha, L.S., et al, *Problems of the Arctic and the Antarctic, collection of articles*, 1979, Vol.45, p.1-12, TT 75-52083, For Russian original see 30-3. 33 refs.

Ivanov, V.V., Chizhov, O.P.

Glacial hydrology, Glacier ablation, Runoff, Glacier mass balance, Seasonal ablation, Seasonal variations.

34-1886

Cooling of the Arctic.

Zakharov, V.F., *Problems of the Arctic and the Antarctic, collection of articles*, 1979, Vol.45, p.13-22, TT 75-52083, For Russian original see 30-4. 14 refs.

Climatic changes, Air temperature, Weather forecasting.

34-1887

Statistical structure of large-scale sea level oscillations in the high latitudes of the Northern Hemisphere.

Bannov-Balkov, I.U.L., *Problems of the Arctic and the Antarctic, collection of articles*, 1979, Vol.45, p.23-30, TT 75-52083, For Russian original see 30-5. 5 refs.

Sea level, Statistical analysis, Periodic variations.

34-1888

Secular cycle of solar activity and baric field of Earth's Northern Hemisphere.

Maksimov, I.V., et al, *Problems of the Arctic and the Antarctic, collection of articles*, 1979, Vol.45, p.31-43, TT 75-52083, For Russian original see 30-6. 16 refs.

Sleptsov-Shevelich, B.A.

Solar activity, Atmospheric pressure, Ice cover, Periodic variations.

34-1889

Regime of high relative humidity of air in the Arctic.

Zav'ialova, I.N., *Problems of the Arctic and the Antarctic, collection of articles*, 1979, Vol.45, p.44-56, TT 75-52083, For Russian original see 30-7. 13 refs.

Humidity, Polar regions.

34-1890

Quantitative relations in phase composition of sea ice.

Nazintsev, I.U.L., *Problems of the Arctic and the Antarctic, collection of articles*, 1979, Vol.45, p.76-83, TT 75-52083, For Russian original see 30-8. 14 refs.

Sea ice, Ice salinity, Ice thermal properties.

34-1891

Method of forecasting flexural strength of ice cover.

Rylin, A.I.A., *Problems of the Arctic and the Antarctic, collection of articles*, 1979, Vol.45, p.99-108, TT 75-52083, For Russian original see 30-9. 7 refs.

Ice cover strength, Sea ice, Flexural strength, Ice salinity, Forecasting.

34-1892

Choice of algorithms for numerical determination of size distribution and compactness of ice floes.

Khelsin, D.E., *Problems of the Arctic and the Antarctic, collection of articles*, 1979, Vol.45, p.109-117, TT 75-52083, For Russian original see 30-10. 4 refs.

Sea ice distribution, Ice cover strength, Icebergs, Ice forecasting, Ice conditions, Mathematical models.

34-1893

Instability of internal waves as a mechanism of heat transfer from Atlantic waters to the Arctic Basin.

Alekseev, G.V., et al, *Problems of the Arctic and the Antarctic, collection of articles*, 1979, Vol.45, p.118-125, TT 75-52083, For Russian original see 30-11. 15 refs.

Nagurnyl, A.P., Savechenko, V.G., Shpakher, A.O.

Heat transfer, Water temperature, Water waves, Ice conditions, Ocean currents, Ocean waves.

34-1894

Lower limit of application of hydrodynamic model of ice drift.

Khelsin, D.E., et al, *Problems of the Arctic and the Antarctic, collection of articles*, 1979, Vol.45, p.154-157, TT 75-52083, For Russian original see 30-13. 4 refs.

Ivchenko, V.O.

Sea ice, Drift, Hydrodynamics, Mathematical models, Icebergs.

34-1895

Microscopic algae in Davis Sea fast ice.

Bulnitskii, V.Kh., et al, *Problems of the Arctic and the Antarctic, collection of articles*, 1979, Vol.45, p.126-137, TT 75-52083, For Russian original see 30-12. 10 refs.

Kozyrenko, T.F., Shamont'ev, V.A.

Fast ice, Cryobiology, Algae, Antarctica—Davis Sea.

Samples of fast ice taken from time of formation until melting in the spring were examined for algae. Species found at various times of the year and their relative frequency are given. The number and variety of algae and the monthly variations in the population testify to an active microscopic fauna in fast ice.

34-1896

Determination of winter accretion of ice in leads with consideration of hummocking.

Alekseev, G.V., et al, *Problems of the Arctic and the Antarctic, collection of articles*, 1979, Vol.45, p.158-163, TT 75-52083, For Russian original see 30-14. 4 refs.

Buzuev, A.I.A.

Sea ice, Ice accretion, Ice forecasting, Hummocks, Mathematical models.

34-1897

Problems of the Arctic and the Antarctic, collection of articles, Vol.46, 1975.

Treshnikov, A.F., ed, New Delhi, Amerind Publishing Co., 1979, 166p., TT 76-52023, Translation of Problemy Arktiki i Antarktiki, sbornik statei, vyp.46, 1975. Refs. passim. For selected articles see 34-1898 through 34-1904 or A-22711, H-22709, I-22708, I-22710 and K-22707.

Hydrodynamics, Meteorology, Ice conditions, Research projects.

This volume contains papers on the following subjects: hydrometeorology, oceanography, ionospheric studies, ice conditions and topics of general nature. Material has also been provided on the mental and physical state of participants of Soviet Antarctic expeditions and on the work done by the Arctic Research Laboratory, Point Barrow.

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Hydrodynamics, Meteorology, Ice conditions, Research projects.

34-1904

Load-bearing capacity of ice cover and determination of breaking strength.

Serikov, M.I., *Problems of the Arctic and the Antarctic, collection of articles*, 1979, Vol.46, p.152-156, TT 76-52023, For Russian original see 30-3415. 3 refs.

Ice cover strength, Ice cover thickness, Ice strength, Ice breaking, Ice mechanics, Buoyancy, Bearing tests, Analysis (mathematics).

34-1905

Forecasting seasonal snowmelt runoff: a summary of experience with two models applied to three drainages in the Cascade Mountains of Washington.

Lettenmaier, D.P., et al, *Washington (State) University. Hydraulics Laboratory. Technical report*, Nov. 1978, TR-59, 109p. PB-294 656.

Waddle, T.J.

Snowmelt, Runoff forecasting, Watersheds, Models.

34-1906

Reliability of 6 kV power lines in coal mines in glaze development areas. [Otsenka nadezhnosti vozdukhnykh lini 6 kV ugodnykh shakht v gololednykh ralonakh].

Manatskov, B.M., *Novocherkassk. Politehnicheskii institut. Trudy*, 1972, Vol.262, p.110-117, In Russian. 1 ref.

Mining, Electric power, Power line icing, Ice loads.

34-1907

Thermal insulation of roads with moderate traffic. [Isolation thermique des chaussées à trafic moyen].

Dysli, M., *Strasse und Verkehr*, Nov. 1979, 65(11), p.399-406, In French. 11 refs.

Roads, Thermal insulation.

34-1908

Computer analysis of freezing with water migration in time when the process is formed on snow cover surface. [Kolichestvennoe issledovanie protessa promerzaniia s migratsiei vlagi pri formirovani na poverkhnosti snezhnogo pokrova vo vremeni].

Medvedev, A.V., et al, *Merzlotnye issledovaniia*, 1979, Vol.18, p.3-23, In Russian. 18 refs.

Melamed, V.G.

Soil freezing, Frost penetration, Stefan problem, Computer programs, Soil water migration, Frost heave, Cryogenic structures.

34-1909

Evaluating snow cover effect on temperature field of freezing rocks, allowing for the dependence of thermophysical snow characteristics on temperature. [Otsenka vliianiia snezhnogo pokrova na temperaturnoe pole promerzaiushchikh gornykh porod pri uchete zavisimosti teplofizicheskikh kharakteristik snega ot temperatury].

Melamed, V.G., et al, *Merzlotnye issledovaniia*, 1979, Vol.18, p.24-33, In Russian. 9 refs.

Medvedev, A.V.

Stefan problem, Soil freezing, Frost penetration, Snow cover effect, Frost forecasting.

34-1910

Approximate calculation of permafrost thickness beneath underground pipelines. [Priblizhennyi metod rascheta moshchnosti mnogoletnego promerzaniia gruntov pod zaglublennym truboprovodom].

Kondrat'ev, V.G., *Merzlotnye issledovaniia*, 1979, Vol.18, p.34-36, In Russian. 4 refs.

Underground pipelines, Permafrost thickness, Permafrost beneath structures, Permafrost hydrology.

34-1911

Influence of paludification and water bodies on thermal regime of rocks. [K otsenke vliianiia vodoemov i zabolochennosti na temperaturnyi rezhim gornykh porod].

Garagulia, L.S., et al, *Merzlotnye issledovaniia*, 1979, Vol.18, p.37-42, In Russian. 5 refs.

Kudriavtsev, V.A.

Permafrost thermal properties, Permafrost hydrology, Frozen rock temperature, Swamps, Permafrost beneath lakes, Permafrost beneath rivers.

Permafrost thermal properties, Permafrost hydrology, Frozen rock temperature, Swamps, Permafrost beneath lakes, Permafrost beneath rivers.

Permafrost thermal properties, Permafrost hydrology, Frozen rock temperature, Swamps, Permafrost beneath lakes, Permafrost beneath rivers.

Permafrost thermal properties, Permafrost hydrology, Frozen rock temperature, Swamps, Permafrost beneath lakes, Permafrost beneath rivers.

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Permafrost thermal properties, Permafrost hydrology, Frozen rock temperature, Swamps, Permafrost beneath lakes, Permafrost beneath rivers.

Permafrost thermal properties, Permafrost hydrology, Frozen rock temperature, Swamps, Permafrost beneath lakes, Permafrost beneath rivers.

Permafrost thermal properties, Permafrost hydrology, Frozen rock temperature, Swamps, Permafrost beneath lakes, Permafrost beneath rivers.

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Permafrost thermal properties, Permafrost hydrology, Frozen rock temperature, Swamps, Permafrost beneath lakes, Permafrost beneath rivers.

Permafrost thermal properties, Permafrost hydrology, Frozen rock temperature, Swamps, Permafrost beneath lakes, Permafrost beneath rivers.

Permafrost thermal properties, Permafrost hydrology, Frozen rock temperature, Swamps, Permafrost beneath lakes, Permafrost beneath rivers.

Permafrost thermal properties, Permafrost hydrology, Frozen rock temperature, Swamps, Permafrost beneath lakes, Permafrost beneath rivers.

Permafrost thermal properties, Permafrost hydrology, Frozen rock temperature, Swamps, Permafrost beneath lakes, Permafrost beneath rivers.

- 34-1913**  
Evaluating temperature regime of ground on the basis of system analysis of the effect of variability of temperature forming factors. (Otsenka temperatur'nogo rezhima grunta na osnove sistemnogo analiza vlianiia izmenchivosti temperatury formirovaniushchikh faktorov). Parinuzin, S.I., *Merzlotnye issledovaniia*, 1979, Vol. 18, p. 53-57, In Russian. 6 refs.  
Permafrost thermal properties, Frozen rock temperature, Snow cover effect, Analysis (mathematics).
- 34-1914**  
Development stages of geocryologic forecasting. (Ob etapakh razvitiia geokriologicheskogo prognoza). Maksimova, I.N., *Merzlotnye issledovaniia*, 1979, Vol. 18, p. 57-62, In Russian. 3 refs.  
Geocryology, Permafrost forecasting, Theories, Research projects.
- 34-1915**  
Types of geocryologic forecasting. (Vidy geokriologicheskogo prognoza). Maksimova, I.N., *Merzlotnye issledovaniia*, 1979, Vol. 18, p. 63-72, In Russian. 5 refs.  
Geocryology, Permafrost forecasting, Permafrost hydrology, Engineering geology, Hydrogeology, Classification.
- 34-1916**  
Permafrost thawing beneath pipes with different pipe laying methods. (Ottaivanie porod pod truboi pri raznykh sposobakh ee zalozenia). Zamolotchkova, S.A., *Merzlotnye issledovaniia*, 1979, Vol. 18, p. 73-79, In Russian.  
Pipelines, Embankments, Trenching, Permafrost beneath structures, Permafrost forecasting, Ground thawing.
- 34-1917**  
Novaya Zemlya map of permafrost temperature; scale 1:2,500,000. (Merzlotno-temperaturnaya karta Novoi Zemli v mashtabe 1:2,500,000). Kondrat'eva, K.A., *Merzlotnye issledovaniia*, 1979, Vol. 18, p. 80-101, In Russian. 21 refs.  
Maps, Permafrost structure, Frozen rock temperature, Ice cover thickness, Ice temperature, USSR—Novaya Zemlya.
- 34-1918**  
Rock temperatures in the Kamchatka Peninsula. (Temperatura porod Kamchatki). Zamolotchkova, S.A., et al., *Merzlotnye issledovaniia*, 1979, Vol. 18, p. 102-118, In Russian. 26 refs.  
Smirnova, V.N.  
Maps, Geology, Geocryology, Hydrology, Glaciation, Ground ice, Permafrost distribution, Snow cover distribution, USSR—Kamchatka Peninsula.
- 34-1919**  
Rock stream structure in South Yakutia. (Osobennosti stroeniia kurumov Iuzhnoi Iakutii). Tiurin, A.I., et al., *Merzlotnye issledovaniia*, 1979, Vol. 18, p. 119-128, In Russian. 6 refs.  
Poltev, N.F.  
Geocryology, Rock streams, Rock glaciers, Ground ice, Ice structure.
- 34-1920**  
Observing rock stream movement rates on the Chul'man Plateau. (Rezultaty nabludenii za skorostiami dvizheniia oblomochnogo materiala kurumov Chul'manskogo Platou). Ospennikov, E.N., *Merzlotnye issledovaniia*, 1979, Vol. 18, p. 129-133, In Russian. 4 refs.  
Slope processes, Talus, Rock streams, Flow rate, Ground ice, Seasonal freeze thaw.
- 34-1921**  
New data on geocryological structure of swamps in southern Yakutia. (Novye dannye o merzlotno-geokriologicheskoi stroenii bolot Iuzhnoi Iakutii). Chizhov, A.B., et al., *Merzlotnye issledovaniia*, 1979, Vol. 18, p. 134-140, In Russian. 4 refs.  
Ospennikov, E.N., Piotrovskii, M.V., Skobeleva, E.I.  
Swamps, Permafrost distribution, Permafrost structure, Thermokarst, Ground ice, Permafrost hydrology, USSR—Yakutia.
- 34-1922**  
Amount of geocryologic information obtained from the SN-6 films used in aerial photography of the Chul'man region. (O geokriologicheskoi informativnosti spektrozonal'nykh aerofotomaterialov (na primere Chul'manskogo raiuna)). Gavrilov, A.V., *Merzlotnye issledovaniia*, 1979, Vol. 18, p. 141-153, In Russian. 10 refs.  
Aerial surveys, Geocryology, Photographic reconnaissance, Geobotanical interpretation, Taiga.
- 34-1923**  
Studies of geobotanical indices in the medium-scale combined geocryologic survey of southern Yakutia. (Osobennosti indikatsionnykh geobotanicheskikh issledovaniu pri srednemashhtabnoi kompleksnoi merzlotnoi s'iemke (na primere Iuzhnoi Iakutii)). Melent'ev, V.S., *Merzlotnye issledovaniia*, 1979, Vol. 18, p. 154-158, In Russian. 1 ref.  
Mapping, Geocryology, Surveys, Geobotanical interpretation, USSR—Yakutia.
- 34-1924**  
Experimental studies of ice formation fields under nonunivariate frost penetration conditions. (Eksperimental'noe izuchenie polia i distosti v usloviakh neodnornernogo promerzaniia). Zhestkova, T.N., et al., *Merzlotnye issledovaniia*, 1979, Vol. 18, p. 159-167, In Russian. 8 refs.  
Shur, I.L.  
Soil freezing, Frost penetration, Frozen fines, Clays, Cryogenic structures, Experimentation.
- 34-1925**  
Phase composition of moisture in permafrost of different origin and age. (Fazovyi sostav vlazgi v merzlykh porodakh razlichnogo genezisa i vozrastaj). Ershov, E.D., et al., *Merzlotnye issledovaniia*, 1979, Vol. 18, p. 168-178, In Russian.  
Cheverev, V.G., Akimov, I.P., Pakhomova, T.M.  
Permafrost hydrology, Unfrozen water content, Permafrost structure, Frozen fines, Ground water, Phase transformations.
- 34-1926**  
Moisture transfer and ice segregation in the frozen zone of thawing ground. (Vlagoobmen i segregatsionnoe i'dovyedlenie v merzlot zone ottaivaiushchikh gruntu). Ershov, E.D., et al., *Merzlotnye issledovaniia*, 1979, Vol. 18, p. 179-192, In Russian. 8 refs.  
Soil freezing, Soil water migration, Frost penetration, Ice formation, Active layer, Cryogenic structures, Experimentation.
- 34-1927**  
Bound water content in fine grained rocks. (O nerastvoraiushchem ob'eme vody, soderzhashcheisya v tonkodispersnykh gornykh porodakh). Ananian, A.A., et al., *Merzlotnye issledovaniia*, 1979, Vol. 18, p. 193-196, In Russian. 9 refs.  
Poltev, N.F.  
Frozen fines, Hygroscopic water, Unfrozen water content, Molecular structure.
- 34-1928**  
Active centers at the surface of fine rock particles. (Ob aktivnykh tsentrakh na poverkhnosti chastits tonkodispersnykh gornykh porod). Ananian, A.A., *Merzlotnye issledovaniia*, 1979, Vol. 18, p. 196-200, In Russian. 9 refs.  
Frozen fines, Unfrozen water content, Molecular structure, Phase transformations, Ground ice.
- 34-1929**  
Lower boundary of water-ice phase transitions in frozen fines. (O nizhnii granitse fazovykh perekhodov vody v led v merzlykh tonkodispersnykh gornykh porodakh). Ananian, A.A., et al., *Merzlotnye issledovaniia*, 1979, Vol. 18, p. 201-206, In Russian. 8 refs.  
Golovanova, G.F.  
Frozen fines, Unfrozen water content, Phase transformations, Clays, Frozen rock temperature, Experimentation.
- 34-1930**  
Permafrost thickness and distribution in the low-mountain Amur River region. (Kharakter rasprostraneniia i moshchnost' mnogoletnemerzlykh porod na nizkogor'e zapadnoi chasti Amurskoi oblasti). Lisitsyna, O.M., et al., *Merzlotnye issledovaniia*, 1979, Vol. 18, p. 207-214, In Russian. 2 refs.  
Romanovskii, V.E.  
Permafrost distribution, Permafrost thickness, Permafrost structure, Permafrost beneath rivers, Permafrost hydrology, Permafrost depth, USSR—Amur River.
- 34-1931**  
Structure and absolute geochronology of alassy deposits in Central Yakutia. (Stroenie i absolutnaia geokhronologia alassykh otlozhenii Tsentral'noi Iakutii). Katasonov, E.M., ed., Novosibirsk, Nauka, 1979, 95p., In Russian with English table of contents enclosed. Refs. p. 78-80.  
Alassy, Cryogenic structures, Thermokarst, Geocryology, Ground ice, Permafrost dating, USSR—Yakutia.
- 34-1932**  
Infrared radiators for heating frozen cargo. (Razogrev smet'zhishkha gruzov na ustanovkakh s infrakrasnym izlucheniem). Lepnev, M.I., et al., Leningrad, Stroiizdat, 1979, 94p., In Russian with English table of contents enclosed. 10 refs.  
Potapov, V.I.  
Frozen cargo, Unloading, Heating, Infrared equipment.
- 34-1933**  
Arctic transportation systems. (Arktische Transportsysteme). Nitzki, L., *Schiffbautechnische Gesellschaft. Jahrbuch*, 1976 (publ. 1977), Vol. 70, p. 1-6, In German. 2 refs.  
DLC VM3 S3  
Marine transportation, Ships, Ice navigation, Rescue equipment, Cold weather operation, Icebreakers.
- 34-1934**  
Importance of full scale testing in ice for designing icebreaking ships. (Makinen, E., *Schiffbautechnische Gesellschaft. Jahrbuch*, 1976 (publ. 1977), Vol. 70, p. 7-16, 14 refs.  
DLC VM3 S3  
Icebreakers, Tests, Ice conditions, Ice pressure, Protective coatings.
- 34-1935**  
Steel-ice friction coefficients from field and laboratory research. (Koeffitsienty trieniia stali-lesa s Versuchen in der Arktis und im Labor). Grothues-Spork, H., *Schiffbautechnische Gesellschaft. Jahrbuch*, 1976 (publ. 1977), Vol. 70, p. 17-24, In German. 4 refs.  
DLC VM3 S3  
Ice friction, Ice solid interface, Steels, Measuring instruments, Research projects, Ice temperature, Ice salinity.
- 34-1936**  
Subsurface drainage in Siberia and methods of its investigation. (Podzemnyi stok na territorii Sibiri i metody ego izucheniia). Shen'kman, B.M., ed., Novosibirsk, Nauka, 1979, 136p., In Russian. For selected papers see 34-1937 through 34-1940. Refs. passim.  
Permafrost distribution, Permafrost hydrology, Subsurface drainage, Permafrost structure, Water supply, Water reserves, Naleds, Meltwater, Water chemistry.
- 34-1937**  
Role of naleds in chemical element migration in water. (Rol' naledi v formirovanii khimicheskogo stoka). Ivanov, A.V., *Podzemnyi stok na territorii Sibiri i metody ego izucheniia* (Subsurface drainage in Siberia and methods of its investigation) edited by V.M. Shen'kam, Novosibirsk, Nauka, 1979, p. 41-66, In Russian. 32 refs.  
Naleds, Meltwater, Water chemistry, Freeze thaw cycles.
- 34-1938**  
Exploration and sources of ground water reserves in areas of Noril'sk-type commercial ore deposits. (Osobennosti razvedki i istochniki formirovaniia zapasov podzemnykh vod mestorozhdenii Noril'skogo promyshlennogo tipa). Roginets, I.L., *Podzemnyi stok na territorii Sibiri i metody ego izucheniia* (Subsurface drainage in Siberia and methods of its investigation) edited by V.M. Shen'kam, Novosibirsk, Nauka, 1979, p. 83-87, In Russian.  
Mining, Water supply, Permafrost hydrology, Water reserves, Exploration, Permafrost thickness, Permafrost structure, Drilling.
- 34-1939**  
Temporary variations in subsurface drainage of southwestern Transbaikalia. (Vremennaia izmenchivost' podzemnogo stoka Iugo-Zapadnogo Zabalkaiia). Khaustov, A.P., *Podzemnyi stok na territorii Sibiri i metody ego izucheniia* (Subsurface drainage in Siberia and methods of its investigation) edited by V.M. Shen'kam, Novosibirsk, Nauka, 1979, p. 91-96, In Russian. 3 refs.  
Permafrost distribution, Permafrost hydrology, Subsurface drainage, Permafrost structure, USSR—Transbaikalia.



34-1940

Role of seasonal ground freezing in ground water regimes of the area east of Lake Baykal. (Rol'sezonnogo promerzaniia gruntov v formirovani rezhima podzemnykh vod v Predbaikal'e).

Blokhin, I.U.I., Podzemnyi stok na territorii Sibiri i metod, ego izucheniia (Subsurface drainage in Siberia and methods of its investigation) edited by V.M. Shen'kam, Novosibirsk, Nauka, 1979, p.96-101, In Russian. 11 refs.

Soil freezing, Seasonal freeze thaw, Soil water migration, Frost penetration, USSR—Baykal Lake.

34-1941

New type of feeder road surface. (Novyi tip pokrytiia dlia lesovoznykh usov).

Sokolov, S.A., et al, *Lesnaia promyshlennost'*, 1979, No.8, p.8-9, In Russian.

Vedenskii, I.U.A., Petrovskii, L.V., Galakhin, V.I. Roads, Pavements, Prefabrication, Modular construction, Wooden structures.

34-1942

Slab of silicate reinforced concrete. (Plity iz silikatnogo zhelezobetonu).

Griazin, A.D., et al, *Lesnaia promyshlennost'*, 1979, No.8, p.9, In Russian.

Savel'ev, V.V. Pavements, Prefabrication, Reinforced concretes, Sleds, Roads.

34-1943

Bauxite slag replaces gravel. (Boksitovyi shlam vmesto graviia).

Kolbas, N.S., et al, *Lesnaia promyshlennost'*, 1979, No.8, p.10, In Russian.

Motovilov, B.P., Grishin, P.V. Roads, Pavements, Construction materials, Wastes.

34-1944

Machine for road building and maintenance. (Mashina dlia dorozhnykh rabot).

Matveenko, L.S., et al, *Lesnaia promyshlennost'*, 1979, No.8, p.12-14, In Russian.

Potapov, I.U.N., Zhelezniak, F.A. Roads, Construction equipment, Winter maintenance, Snow removal, Snow roads.

34-1945

Road bed and surface design. (Problemy proektirovaniia zemliannogo polotna i dorozhnoi odezhdy).

Vyrko, N.P., *Lesnaia promyshlennost'*, 1979, No.8, p.18, In Russian.

Pavements, Roadbeds, Frost penetration, Frost heave, Design.

34-1946

Impervious plastic screens on butyl-rubber base. (Protivofil'tratsionnye ekrany iz polimernykh materialov na osnove butilkauchuka).

Sergeev, B.I., et al, *Gidrotekhnika i melioratsiia*, May 1979, No.5, p.20-23, In Russian.

Kosichenko, I.U.M. Hydraulic structures, Channels (waterways), Slope protection, Linings, Plastics.

34-1947

Service life of plastic linings for waterways. (Dolgovechnost' plonochnykh ekranov v oblitsovkakh kanalov).

Gvenetadze, A.R., *Gidrotekhnika i melioratsiia*, May 1979, No.5, p.23-25, In Russian. 2 refs.

Hydraulic structures, Channels (waterways), Slope protection, Linings, Plastics.

34-1948

Using peat in embankment construction. (Ispol'zovanie torfa v dambakh obvalovaniia).

Shupilov, I.A.M., *Gidrotekhnika i melioratsiia*, June 1979, No.6, p.18-21, In Russian.

Hydraulic structures, Earth dams, Swamps, Peat, Construction materials.

34-1949

Hydraulic method of sanding peat soils. (Peskovanie torfiannykh pochv namymnym sposobom).

Lazarev, I.V., et al, *Gidrotekhnika i melioratsiia*, June 1979, No.6, p.21-23, In Russian.

Melamut, D.L. Swamps, Land reclamation, Peat, Organic soils, Excavation, Dredging.

34-1950

Earth structures on peaty silts under pressure head conditions. (Zemlianye napornye sooruzheniia na torfiano-iliistnykh gruntakh).

Tkach, V.N., et al, *Gidrotekhnika i melioratsiia*, June 1979, No.6, p.23-26, In Russian.

Gubina, N.I. Swamps, Hydraulic structures, Earth dams, Foundations, Peat, Bearing strength.

34-1951

Formation of larch wood in Taymyr. (Formirovanie drevessiny listvennitsy na Taymyre).

Kandelaki, A.A., *Lesovedenie*, 1979, No.6, p.64-69, In Russian with English summary. 14 refs.

Forest tundra, Plant physiology, USSR—Taymyr Peninsula.

34-1952

Rock thermophysics. Summaries of reports. (Problemy gornoj teplofiziki. Tezisy vystuplenii).

Vsesoiuznaia nauchno-tehnicheskai konferentsiia, Oct. 30-Nov. 2, 1973, Leningrad, 1973, 75p., In Russian. For selected summaries see 34-1953 through 34-1958.

Diad'kin, I.U.D., ed. DLC TN871.P717

Wells, Drilling fluids, Permafrost, Thermal regime, Heat transfer, Ice drills, Thermal drills, Research projects.

34-1953

Thermal regime of wells and its control. (Teplovot rezhim skvazhin i ego regulirovanie).

Kudriashov, B.B., et al, Problemy gornoj teplofiziki (Rock thermophysics) edited by I.U.D. Diad'kin, Leningrad, 1973, p.3-5, In Russian.

Pudovkin, M.A. DLC TN871.P717

Wells, Thermal regime, Ice drills, Drilling fluids, Research projects, Permafrost.

34-1954

Influence of thermal regime variations on the state of wells drilled in permafrost. (Vliianie izmeneniia temperaturnogo rezhima na sostoianie skvazhin v tolshe vechnomerzlykh porod).

Griazin, G.S., Problemy gornoj teplofiziki (Rock thermophysics) edited by I.U.D. Diad'kin, Leningrad, 1973, p.21-22, In Russian.

DLC TN871.P717

Wells, Drilling fluids, Drilling, Heat transfer, Thermal regime, Permafrost.

34-1955

Controlling thermal regime of wells when using drilling fluids in permafrost. (Regulirovanie temperaturnogo rezhima skvazhin pri bureni s promyvkoj v merylykh porodakh).

IAkovlev, A.M., Problemy gornoj teplofiziki (Rock thermophysics) edited by I.U.D. Diad'kin, Leningrad, 1973, p.23-24, In Russian.

DLC TN871.P717

Wells, Thermal regime, Drilling fluids, Temperature control, Permafrost.

34-1956

Practical advantages and prospects of drilling with simultaneous freezing of weakly consolidated rocks. (Prakticheskie preimushchestva i perspektivy metoda bureniia s odnovremennym zamorazhivaniem slabosvaznykh porod).

Afanas'ev, I.S., et al, Problemy gornoj teplofiziki (Rock thermophysics) edited by I.U.D. Diad'kin, Leningrad, 1973, p.25-26, In Russian.

Beresneva, D.I. DLC TN871.P717

Wells, Drilling, Artificial freezing, Coring, Core samplers.

34-1957

Controlling temperatures of hydrating cementing mixtures in wells. (Regulirovanie temperatury gidratiruiushchego tamponazhnoi smesi v skvazhine).

Putikov, O.F., et al, Problemy gornoj teplofiziki (Rock thermophysics) edited by I.U.D. Diad'kin, Leningrad, 1973, p.29-30, In Russian.

IAkovlev, A.M. DLC TN871.P717

Wells, Cements, Drilling, Concrete placing, Permafrost.

34-1958

Research on deep thermal drilling of Antarctic ice. (Rezultaty issledovanii i razrabotok po glubokomu bureniiu-protaivaniiu vo l'dakh Antarktidy).

Kudriashov, B.B., et al, Problemy gornoj teplofiziki (Rock thermophysics) edited by I.U.D. Diad'kin, Leningrad, 1973, p.35-36, In Russian.

Chistiakov, V.K., Vartkyan, V.G. DLC TN871.P717

Glacier ice, Snow depth, Firn stratification, Ice drills, Thermal drills, Antarctica.

The TELGA drilling rig has been improved to allow a much deeper core to be made. Drilling operations near Vostok have yielded high-quality cores down to 800 or 900 m. Field trials combined with laboratory work have developed a system based on a thermal drill and a well-insulated heating element, using warm air to keep the borehole clear of water.

34-1959

Synopsis—ice in estuaries and harbours.

Carstens, T., *Marine science communications*, 1979, 5(1), p.1-30, 18 refs. For this paper from another source see 33-3763.

Sea ice, River ice, Ports, Estuaries, Water flow, Heat transfer, Models, Ice prevention, Air entrainment.

34-1960

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34-2004

**Increased mercury contamination of distilled and natural water samples caused by oxidizing preservatives.** [Povysheie kontsentratsii rtyutnykh soedineniy v vzorokh raznogo iskhodnogo i prirodoznachnogo vody]. Cragin, J.H., *Analytica chimica acta*, 1979, Vol.110, MP 1270, p.313-319, 18 refs.

**Water chemistry, Gases, Vapor transfer, Pollution, Laboratories.**

The passage of mercury vapor from ambient air through the walls of conventional polyethylene (CPE), linear polyethylene (LPE), and Teflon (FEP) containers can seriously contaminate solutions of distilled and natural water stored in these containers. The rate of mercury contamination is dramatically increased when the sample solution contains oxidizing agents such as nitric acid or potassium permanganate, which are commonly used as preservatives to prevent loss of mercury (II) ion. The rate of contamination also depends on container material and decreases in the order CPE > LPE > FEP > glass. Freezing the samples in plastic containers is an effective way to prevent mercury contamination. When freezing is not practical, storage in glass containers minimizes sample contamination from ambient mercury vapor.

34-2005

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34-2006

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**Tundra, Soil microbiology, Decomposition, Fungi, Climatic factors, Models.**

34-2007

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34-2008

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34-2009

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**Steppes, Forest land, Taiga, Landscape types, Classifications.**

34-2010

**Comparative analysis of past and present glacial and permafrost relief forms in Asia.** [Sravnitel'nyi analiz rasprostraneniya sovremennogo i drevnego lednikovogo i merzlotnogo rel'efa Azii]. Kazakova, N.M., *Geografiya i paleogeografiya klimomorfogeneza (Geography and paleogeography of climate and morphogenesis)* edited by A.P. Kapitsa, Vladivostok, 1976, p.10-45, In Russian. Refs. p.41-45.

**DLC GB327.S68G46**

**Permafrost distribution, Permafrost origin, Glaciation, Glacier formation, Topography, Paleoclimatology, Slope processes, Solifluction, Patterned ground, Asia.**

34-2011

**Role of lake and naled ice in the formation of natural dynamic systems.** [Rol' nalednogo i ozernogo l'da v organizatsii prirodnykh kompleksov]. Ivanets, B.S., et al., *Geografiya i paleogeografiya klimomorfogeneza (Geography and paleogeography of climate and morphogenesis)*, Vladivostok, 1976, p.57-66, In Russian. 8 refs.

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**DLC GB327.S68G46**

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34-2012

**Determining particle distribution of ice-forming reagents in clouds using the Setton diffusion model.** [K opredeleniiu zakonornostei rasprostraneniya chastits l'doobrazuiushchego reagenta v oblakakh na osnove diffuzionnoi modeli Settona]. Klingo, V.V., et al., *Leningrad. Glavnaia geofizicheskaya observatoriya. Trudy*, 1979, Vol.405, p.41-50, In Russian. 10 refs.

**Kudashkin, G.D.**

**Ice nuclei, Cloud seeding, Nucleating agents, Models.**

34-2013

**Electric field effect on crystallization of supercooled water.** [K voprosu o vliyaniie elektricheskogo polia na kristallizatsiyu perekhlazhdennoi vody]. Nikandrov, V.I.A., et al., *Leningrad. Glavnaia geofizicheskaya observatoriya. Trudy*, 1979, Vol.405, p.65-70, In Russian. 12 refs.

**Shlykov, V.V.**

**Ice crystal growth, Cloud droplets, Supercooled clouds, Electric fields, Analysis (mathematics).**

34-2014

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**Pershina, T.A., Shishkin, N.S.**

**Cloud droplets, Cloud electrification, Supercooled clouds, Cold chambers, Test equipment.**

34-2015

**Heterogeneous nucleation by organic crystallization nuclei.** [K voprosu o rol'ye organicheskikh yad v kristallizatsii]. Girs, S.P., et al., *Leningrad. Glavnaia geofizicheskaya observatoriya. Trudy*, 1979, Vol.405, p.76-82, In Russian. 12 refs.

**Zhukovskii, A.P., Serova, M.N.**

**Cloud seeding, Organic nuclei, Nucleating agents.**

34-2016

**Studying phase transformations of water when reacting with different underlying surfaces.** [Nekotorye rezultaty issledovaniia fazovykh perekhodov vody pri vzaimodelstvii s poverkhnost'iu razlichnykh podlozhek].

Gurs, S.P., et al. *Leningrad. Glavnaya geofizicheskaya observatoriia. Trudy*, 1979, Vol.405, p.83-90, In Russian. 5 refs.

Kamentsev, V.N.

**Cloud droplets, Phase transformations, Artificial nucleation, Ice nuclei, Cloud seeding.**

34-2017

**Roasting loess soils to a depth of 25 m.**

Litvinov, I.M., et al. *Soil mechanics and foundation engineering*, May-June 1979 (Pub. Nov. 79), 16(3), p.124-128. Translated from *Osnovaniia, fundamente i mekhanika gruntov*. 7 refs.

Tregub, A.S.; Stepura, I.V.; Tian, R.B.

**Soil stabilization, Loess, Heating.**

34-2018

**Experimental investigation of the stress-strain state of loess soils in the base of rigid plates.**

Tsytoich, N.A., et al. *Soil mechanics and foundation engineering*, May-June 1979 (Pub. Nov. 79), 16(3), p.140-145. Translated from *Osnovaniia, fundamente i mekhanika gruntov*. 8 refs.

Abelev, M.I.U.; Sidorchuk, V.F.; Polishchuk, A.I.

**Loess, Bearing tests, Soil water migration, Foundations, Deformation.**

34-2019

**Engineering-landscape investigations and surveys of railroad routes in mountain taiga.** [Inzhenerno-landshaftnye issledovaniia i izyskaniia trass zheleznykh dorog v gornotaezhnykh ratonakh].

Popovichev, E.A., *Geograficheskoe obshchestvo SSSR. Obninskii otel. Nauchnye trudy*, 1968, 1(1), p.19-26. In Russian. 17 refs.

**Railroads, Engineering geology, Surveys, Landscape types, Taiga.**

34-2020

**Technical and economic calculations of field work for engineering surveys and landscape studies in mountain taiga.** [O skheme tekhniko-ekonomicheskikh raschetov polevykh rabot pri inzhenerno-landshaftnykh issledovaniakh v gornoi taige].

Popovichev, E.A., *Geograficheskoe obshchestvo SSSR. Obninskii otel. Nauchnye trudy*, 1968, 1(1), p.44-53. In Russian. 20 refs.

DLC G1.G31155

**Engineering geology, Landscape types, Surveys, Taiga, Cost analysis.**

34-2021

**Influence of subzero temperatures on the erosion resistance of soils depending on their humidity.** [Vliianie otritsatel'nykh temperatur na protivoozozhoniuiu stolkost' pochvy v zavisimosti ot ee vlazhnosti].

Muromtsev, N.A., *Geograficheskoe obshchestvo SSSR. Obninskii otel. Nauchnye trudy*, 1968, 1(2), p.22-25. In Russian. 5 refs.

DLC G1.G31155

**Soil freezing, Soil water, Frost penetration, Soil erosion, Seasonal freeze thaw.**

34-2022

**Calculating the balance of Arctic Ocean pollutants.** [Spetsifika rascheta balansa zagriazniushchikh veshchestv Severnogo Ledovitogo okeana].

Izmailov, V.V., et al. *Geograficheskoe obshchestvo SSSR. Izvestia*, Nov.-Dec. 1979, 11(6), p.486-491. In Russian. 4 refs.

Simagin, V.M.

**Water pollution, Sea ice, Snow cover, Oil spills, Adsorption, Albedo, Ice strength, Ice melting, Arctic Ocean.**

34-2023

**Mathematical problem of selecting pipeline diameters for aircraft deicing systems.** [Matematicheskaya formulirovka zadachi vybora diameterov truboprovodov v sistemakh protivooledeneniia letatel'nykh apparatov].

Alavkin, B.D., et al. *Samoletostroenie i tekhnika vozdušnogo flota; respublikanskii mezhdovedomstvennyi nauchno-tekhnicheskii sbornik*, 1979, Vol.46, p.76-81. In Russian. 3 refs.

Skliarenko, N.A., Tursunkhodzhaeva, V.V.

**Aircraft icing, Ice prevention, Heat pipes.**

34-2024

**Principal results of frost action experiments at the Centre de Géomorphologie.** [Principaux résultats des expériences de gélification expérimentale effectuées au Centre de Géomorphologie].

Lautridou, J.P., *Inter-nord*, Dec. 1978, No.15, p.5-13. In French with English summary.

**Soil freezing, Freezing rate, Frost action, Compressive properties, Porosity, Permeability, Capillarity, Models.**

34-2025

**Freezing of porous media and problems posed by frost action.** [Congélation des milieux poreux et problèmes posés par la gélification].

Aguirre-Puente, J., *Inter-nord*, Dec. 1978, No.15, p.15-43. In French with English summary. 75 refs.

**Soil freezing, Porous materials, Frost action, Frozen rocks, Geomorphology, Mathematical models.**

34-2026

**Voyage of the Arktika to the Pole and its geo-economic implications.** [L'exploit de l'Arktika au Pôle. Conséquences géo-économiques].

Malaure, J., *Inter-nord*, Dec. 1978, No.15, p.205-208. In French with English summary. 5 refs.

**Icebreakers, Route surveys, Ice navigation, Polar regions, Economic analysis.**

34-2027

**Northern sea route (1973-1976).**

Armstrong, T., *Inter-nord*, Dec. 1978, No.15, p.264-268.

**Route surveys, Ice conditions, Icebreakers, Polar regions.**

34-2028

**Glaciology and glacial and periglacial morphology of Fennoscandia and Iceland.** [Glaciologie et morphologie glaciaire et periglaciaire de la Fennoscandie et de l'Islande].

Biays, P., *Inter-nord*, Dec. 1978, No.15, p.268-277. In French. 48 refs.

**Glaciology, Periglacial processes, Geomorphology.**

34-2029

**Recent fluctuations of glaciation in the Alps.** [Les fluctuations récentes de la glaciation dans les Hautes-Alpes].

Vivian, R., *Inter-nord*, Dec. 1978, No.15, p.277-279. In French.

**Glacier oscillation, Glaciation, Periodic variations, Climatic factors.**

34-2030

**Glacial erosion: methodological problems.** [Erosion glaciaire: problèmes de méthode].

Vivian, R., *Inter-nord*, Dec. 1978, No.15, p.279-283. In French.

**Glacial erosion, Glacial hydrology, Glacier flow, Water erosion.**

34-2031

**Sea ice in the Arctic.** [Les glaces marines dans l'Arctique].

Moign, A., *Inter-nord*, Dec. 1978, No.15, p.283-288. In French. 21 refs.

**Sea ice, Ice conditions, Oil spills, Remote sensing, ERTS imagery.**

34-2032

**Ice caves and permafrost zones in southwest Alberta.**

Harris, S.A., *Erdkunde*, Mar. 1979, 33(1), p.61-70. In English with German summary. 20 refs.

**Ice caves, Permafrost distribution, Glacial geology, Canada—Alberta.**

34-2033

**Winter roof collapses: bad luck, bad construction or bad design.**

Seltz-Petrash, A., *Civil engineering*, Dec. 1979, 49(12), p.42-45.

**Roofs, Snow loads, Snowdrifts.**

34-2034

**Winter roads and ice bridges.**

Lefebvre, L.M., *Civil engineering*, Dec. 1979, 49(12), p.54-57.

**Ice roads, Ice crossings, Snow roads, Economic development, Cost analysis.**

34-2035

**Antarctic ice topography and 150 mb circulation from the NIMBUS-6 TWERLE experiment.**

Levanon, N., et al. *Space research*, 1978, Vol.18, Proceedings of the Open Meetings of the Working Groups on Physical Sciences, 20th Plenary Meeting of COSPAR, Tel Aviv, Israel, 7-18 June 1977, p.43-46. 3 refs.

Julian, P.R., Suomi, V.E.

**Ice surface, Topographic features, Meteorological factors, Altitude.**

New data on antarctic ice surface elevation are now available from many constant density balloons, floating at altitude of about 12.5 km, which traversed the Antarctic during its 1975-76 summer. They were part of 411 balloons launched in the southern hemisphere during the Tropical Wind Energy conversion and Reference Level Experiment (TWERLE). Each balloon carries three sensors: radio altimeter, pressure sensor and ambient temperature sensor. The data are received by the Random Access Measuring System (RAMS) on board the NIMBUS-6 satellite, whenever the balloon is within line of sight. The near Polar orbit of NIMBUS-6, and the continuous day at the Pole combined to allow continuous coverage of TWERLE balloons, south of 66S, during Dec. 1975 and Jan. 1976.

34-2036

**Proceedings.**

Symposium on Research in the Labrador Coastal and Offshore Region, May 8-10, 1979, St. John's, Memorial University of Newfoundland, [1979], 291p., Refs. passim. For selected papers see 34-2037 through 34-2040.

**Oceanography, Ocean currents, Water temperature, Salinity, Ice solid interface, Wind factors.**

34-2037

**Sediment transport by intertidal ice.**

Rosen, P.S., Symposium on Research in the Labrador Coastal and Offshore Region, May 8-10, 1979, Proceedings, St. John's, Memorial University of Newfoundland, 1979, p.133-147. 3 refs.

**Sediment transport, Ice solid interface, Coastal topographic features, Ice erosion, Ice breakup, Wind factors, Tides.**

34-2038

**Experimental oil spills.**

Metge, M., et al. Symposium on Research in the Labrador Coastal and Offshore Region, May 8-10, 1979, Proceedings, St. John's, Memorial University of Newfoundland, 1979, p.184-189.

Thornion, D.E.

**Oil spills, Ocean environments, Pack ice, Experimentation, Marine biology.**

34-2039

**Recent oceanographic observations in the Labrador current.**

Lazier, J.R.N., Symposium on Research in the Labrador Coastal and Offshore Region, May 8-10, 1979, Proceedings, St. John's, Memorial University of Newfoundland, 1979, p.195-204. 7 refs.

**Ocean currents, Oceanographic surveys, Water temperature, Salinity.**

34-2040

**Geostrophic calculations for the Labrador current.**

Keeley, J.K., Symposium on Research in the Labrador Coastal and Offshore Region, May 8-10, 1979, Proceedings, St. John's, Memorial University of Newfoundland, 1979, p.201-218. 16 refs.

**Ocean currents, Water temperature, Salinity, Oceanographic surveys, Velocity, Wind factors.**

34-2041

**Soil-ice system and the shear strength of frozen soils.**

Goughnour, R.R., East Lansing, Mich. State University, 1967. 153p., University Microfilms order No.68-7894, Ph.D. thesis. For abstract see Dissertation abstracts international, Sec.B, June 1968, p.5003-5004.

**Ice solid interface, Shear strength, Frozen ground strength, Frozen ground mechanics, Creep, Rheology, Ice crystals, Deformation.**

34-2042

**Growth of tundra vegetation in relation to Arctic microenvironments at Barrow, Alaska.**

Dennis, J.G., Durham, N.C., Duke University, 1969, 305p., University Microfilms order No.69-22,060, Ph.D. thesis. For abstract see Dissertation abstracts international, Sec.B, Dec. 1969, p.2560-2561.

**Tundra, Growth, Plant ecology, Plant physiology, Thaw depth, Environments, Permafrost, Air temperature, Wind velocity, Soil water.**

34-2043

**Correlation and quantification of airborne spectrometer data to turbidity measurements at Lake Powell, Utah.**

Merry, C.J., MP 1271, International Symposium on Remote Sensing of Environment, 13th, Ann Arbor, Michigan, April 23-27, 1979. Proceedings, Environmental Research Institute of Michigan, 1979, p.1309-1316. 7 refs.

**Lake water, Turbidity, Suspended sediments, Light transmission, Aerial surveys, Spectroscopy.**

A water sampling program was accomplished at Lake Powell, Utah, during June 1975 for correlation to multispectral data obtained with a 500-channel airborne spectroradiometer. Field measurements were taken of percentage of light transmittance, surface temperature, pH and Secchi disk depth. Percentage of light transmittance was also measured in the laboratory.



tory for the water samples. Analyses of electron micrographs and suspended sediment concentration data for four water samples located at Hite Bridge, Mile 168, Mile 180 and Bullfrog Bay indicated differences in the composition and concentration of the particulate matter. Airborne spectroradiometer multispectral data were analyzed for the four sampling locations. The results showed that (a) as the percentage of light transmittance of the water samples decreased, the reflected radiance increased, and (b) as the suspended sediment concentration (mg/l) increased, the reflected radiance increased in the 1-80 mg/l range. In conclusion, valuable qualitative information was obtained on surface turbidity for the Lake Powell water spectra. Also, the reflected radiance measured at a wavelength of 0.58 micron was directly correlated to the suspended sediment concentration.

**34-2044**  
**Tidal flat erosion by ice at La Pociere, St. Lawrence estuary.**  
Dionne, J.-C., *Journal of sedimentary petrology*, Sep. 1969, 39(3), p. 1174-1181, 22 refs.  
**Shore erosion, River ice, Fast ice, Estuaries.**

**34-2045**  
**Pollution potential of manure spread on frozen ground.**  
Young, R.A., et al, *Journal of environmental quality*, 1976, 5(2), p. 174-179, 7 refs.  
Matchler, C.K.  
**Soil pollution.**

**34-2046**  
**Radiative melting of ice layer adhering to a vertical surface.**  
Sedi, N., et al, *Wärme- und Stoffübertragung*, 1979, Vol. 12, p. 137-144, In English with German summary, 7 refs.  
Sugawara, M., Fukusako, S.  
**Ice melting, Heat transfer, Mathematical models, Thermal radiation.**

**34-2047**  
**Rupture of an ice mound near Cape Dorset, N.W.T.**  
Frederking, R.M.W., *Canadian geotechnical journal*, Aug. 1979, 16(3), p. 604-609, In English with French summary, 4 refs.  
**Lake ice, Frost mounds, Ice structure, Thermal stresses, Ice breakup.**

**34-2048**  
**Artificial freezing technique of increasing bottom zone permeability in gas-condensate wells of the Far North.** (O vozmozhnosti uvelicheniya pronitsaemosti prizabolnoi zony skvazhin khozdom na gazokondensatnykh mestorozhdeniyakh Krainego Severa).  
Govdun, V.V., *Razvedka i razrabotka neftnykh i gazovykh mestorozhdenii*, 1979, Vol. 16, p. 11-13, In Russian, 4 refs.  
**Gas wells, Sands, Permeability, Frost shattering.**

**34-2049**  
**Causes of the values of winter pressure of ground on walls of solid-bottom sluice chambers, exceeding the design values.** (O prichinakh prevyseniia zimnego davleniya grunta na kamernye steny shliuzov so sploshnymi dnishchami nad raschetnym ego znacheniem).  
A'deeva, V.I., *Moscow. Inzhenerno-stroitel'nyi institut. Sbornik trudov*, 1979, Vol. 16, p. 98-105, In Russian, 9 refs.  
**Sluices (hydraulic engineering), Walls, Pressure, Ground ice.**

**34-2050**  
**Mudflow sources in the Ukrainian Carpathians.** (Selevyie ochagi v Ukrainskikh Karpatakh).  
Atzenberg, M.M., et al, *Kiev. Ukrainskii nauchno-issledovatel'skii gidrometeorologicheskii institut. Trudy*, 1979, Vol. 162, p. 64-70, In Russian, 10 refs.  
Lundin, S.M., Semenikhina, A.S., Iablonskii, V.V.  
**Slope processes, Landslides, Mudflows, Snow cover effect, Wet snow, Avalanches.**

**34-2051**  
**Allowing for mudflows and snow avalanches when designing and building the Orenburg-west USSR boundary gas pipeline.** (Ob uchete sele-lavinnoi deiatel'nosti v Ukrainskikh Karpatakh pri proektirovanii i stroitel'stve gazoprovoda Orenburg-zapadnaia granitsa SSSR).  
Atzenberg, M.M., et al, *Kiev. Ukrainskii nauchno-issledovatel'skii gidrometeorologicheskii institut. Trudy*, 1978, Vol. 162, p. 75-85, In Russian, 14 refs.  
Grishchenko, V.F., Lundin, S.M., Iablonskii, V.V.  
**Gas pipelines, Mountains, Slope processes, Mudflows, Avalanches, Design.**

**34-2052**  
**Heavy snowfalls and avalanches in the 1975-76 winter season in the Ukrainian Carpathian.** (Obilnye snegopady i laviny zimoi 1975-76 gg v Ukrainskikh karpatakh).  
Grishchenko, V.F., et al, *Kiev. Ukrainskii nauchno-issledovatel'skii gidrometeorologicheskii institut. Trudy*, 1978, Vol. 162, p. 86-90.  
Tokmakov, I.U.A.  
**Snow depth, Avalanche formation, Avalanche triggering, USSR—Carpathian Mountains.**

**34-2053**  
**Hydrogeological conditions of paluded lands in the Ust'-Selenga trough.** (Gidrogeologicheskie uslovia zabolochennykh zemel' Ust'-Selenginskoi vpadiny).  
Adushinov, A.A., *Akademiia nauk SSSR. Sibirskoe otdelenie. Buriatskii filial. Geologicheskii institut. Trudy*, 1976, 6(14), p. 27-35, In Russian, 5 refs.  
Deltas, USSR—Selenga River, USSR—Baykal Lake.

**34-2054**  
**Hydrogeologic and geocryological conditions of the Barguzin trough and land reclamation.** (Gidrogeologicheskie i geokriologicheskie uslovia Barguzinskoi vpadiny v svyazi s melioratsiei zemel').  
Adushinov, A.A., et al, *Akademiia nauk SSSR. Sibirskoe otdelenie. Buriatskii filial. Geologicheskii institut. Trudy*, 1976, 6(14), p. 36-59, In Russian, 4 refs.  
Zamana, L.V.  
**Land reclamation, Permafrost weathering, Paludification, Permafrost hydrology.**

**34-2055**  
**Calculating water balance of the Kola River basin.** (Raschet vodnogo balansa bassaina r. Koly).  
Antonova, T.S., *Leningrad. Gosudarstvennyi gidrologicheskii institut. Trudy*, 1979, Vol. 260, p. 107-119, In Russian, 4 refs.  
**River basins, Water balance, Snow cover distribution, Snow water equivalent, Swamps, Lakes.**

**34-2056**  
**Rock fill stability on embankment slopes.** (Ustoi-chivost' kamennoi nabroski na otkose nasypa).  
Matveev, K.V., et al, *Moscow. Institut inzhenerov zheleznodorozhnogo transporta. Trudy*, 1977, Vol. 580, p. 80-87, In Russian, 2 refs.  
Pisarev, I.U.V.  
**Embankments, Rock fills, Permafrost beneath structures, Slope stability, Baykal Amur railroad, Design.**

**34-2057**  
**All-Union scientific-technical conference on the engineering-geological basis of seismic microregionalization, 1st, Tashkent, Nov. 18-20, 1977. Summaries of reports.** (Tezisy dokladov).  
Vsesoiuznoe nauchno-tekhnicheskoe soveshchanie Inzhenerno-geologicheskaya osnova seismicheskogo mikroraiionirovaniia. 1st, Tashkent, Nov. 18-20, 1977, Tashkent, Fan, 1975, 98p, In Russian. For selected summaries see 34-2058 through 34-2063.  
Mavlianov, G.A., ed.  
DLC TA705.P42  
**Earthquakes, Permafrost physics, Geophysical surveys, Ground ice, Permafrost structure, Permafrost forecasting, Electromagnetic prospecting, Mapping, Loess, Thixotropy, Slope stability.**

**34-2058**  
**Dependence of permafrost seismicity on ground ice content.** (Zavisimost' seismicheskoi opasnosti merylykh gruntov ot ikh 'distosti).  
Dzhurik, V.I., *Vsesoiuznoe nauchno-tekhnicheskoe soveshchanie Inzhenerno-geologicheskaya osnova seismicheskogo mikroraiionirovaniia. 1st, Tashkent, Nov. 18-20, 1977. Tezisy dokladov* (All-Union scientific-technical conference on the engineering-geological basis of seismic microregionalization, 1st, Tashkent, Nov. 18-20, 1977. Summaries of reports) edited by G.A. Mavlianov, Tashkent, Fan, 1975, p. 24-25, In Russian.  
DLC TA705.P42  
**Permafrost physics, Frozen rock temperature, Permafrost structure, Ground ice, Earthquakes.**

**34-2059**  
**Engineering and geological studies for seismic microregionalization of permafrost areas.** (Osobennosti inzhenerno-geologicheskikh issledovani pri seismicheskoi mikroraiionirovani v usloviakh vechno-merzloty).  
Zarubin, N.E., *Vsesoiuznoe nauchno-tekhnicheskoe soveshchanie Inzhenerno-geologicheskaya osnova seismicheskogo mikroraiionirovaniia. 1st, Tashkent, Nov. 18-20, 1977. Tezisy dokladov* (All-Union scientific-technical conference on the engineering-geological basis of seismic microregionalization, 1st, Tashkent, Nov. 18-20, 1977. Summaries of reports) edited by G.A. Mavlianov, Tashkent, Fan, 1975, p. 59-60, In Russian.  
DLC TA705.P42  
**Continuous permafrost, Permafrost structure, Permafrost thickness, Permafrost physics, Earthquakes, Forecasting.**

**34-2060**  
**Using integrated geophysical methods for evaluating earthquake danger in permafrost areas.** (Primenenie kompleksnykh geofizicheskikh metodov dlia otsenki seismicheskoi opasnosti vechno-merzlykh gruntov).  
Pavlov, O.V., et al, *Vsesoiuznoe nauchno-tekhnicheskoe soveshchanie Inzhenerno-geologicheskaya osnova seismicheskogo mikroraiionirovaniia. 1st, Tashkent, Nov. 18-20, 1977. Tezisy dokladov* (All-Union scientific-technical conference on the engineering-geological basis of seismic microregionalization, 1st, Tashkent, Nov. 18-20, 1977. Summaries of reports) edited by G.A. Mavlianov, Tashkent, Fan, 1975, p. 66-67, In Russian.  
Pavlenov, V.A., Dzhurik, V.I.  
DLC TA705.P42  
**Geophysical surveys, Earthquakes, Permafrost physics, Permafrost forecasting, Baykal Amur railroad.**

**34-2061**  
**Using electric survey data in seismic microregionalization of permafrost areas.** (Ispol'zovanie elektrorazvedochnykh dannykh pri seismicheskoi mikroraiionirovani territorii s merzlymi porodami).  
Basov, A.D., et al, *Vsesoiuznoe nauchno-tekhnicheskoe soveshchanie Inzhenerno-geologicheskaya osnova seismicheskogo mikroraiionirovaniia. 1st, Tashkent, Nov. 18-20, 1977. Tezisy dokladov* (All-Union scientific-technical conference on the engineering-geological basis of seismic microregionalization, 1st, Tashkent, Nov. 18-20, 1977. Summaries of reports) edited by G.A. Mavlianov, Tashkent, Fan, 1975, p. 67-68, In Russian.  
Leshechikov, F.N.  
DLC TA705.P42  
**Permafrost, Electromagnetic prospecting, Permafrost structure, Geophysical surveys, Earthquakes, Mapping.**

**34-2062**  
**Composition and properties of flooded loess as a basis for seismic microregionalization.** (Dinamika sostava i svoystv lessovykh porod pri zatopenii kak osnova prognoza seismicheskogo mikroraiionirovaniia).  
Domrachev, G.I., *Vsesoiuznoe nauchno-tekhnicheskoe soveshchanie Inzhenerno-geologicheskaya osnova seismicheskogo mikroraiionirovaniia. 1st, Tashkent, Nov. 18-20, 1977. Tezisy dokladov* (All-Union scientific-technical conference on the engineering-geological basis of seismic microregionalization, 1st, Tashkent, Nov. 18-20, 1977. Summaries of reports) edited by G.A. Mavlianov, Tashkent, Fan, 1975, p. 74-75, In Russian.  
DLC TA705.P42  
**Loess, Soil water migration, Earthquakes, Thixotropy.**

**34-2063**  
**Regularities governing the propagation of railroad induced oscillations in cohesive soils.** (Issledovaniia v svyaznykh gruntakh zakonomernostei rasp. ostraneniia kolebani, vyzvannykh zheleznodorozhnym transportom).  
Chokhonelidze, G.I., et al, *Vsesoiuznoe nauchno-tekhnicheskoe soveshchanie Inzhenerno-geologicheskaya osnova seismicheskogo mikroraiionirovaniia. 1st, Tashkent, Nov. 18-20, 1977. Tezisy dokladov* (All-Union scientific-technical conference on the engineering-geological basis of seismic microregionalization, 1st, Tashkent, Nov. 18-20, 1977. Summaries of reports) edited by G.A. Mavlianov, Tashkent, Fan, 1975, p. 76-77.  
Tsertsvadze, L.A., Mel'nikova, L.G.  
DLC TA705.P42  
**Clays, Cohesion, Slope stability, Oscillations, Wave propagation, Railroads, Embankments.**

34-2064

**Radio echo sounding of the Antarctic ice sheet, 1978-79: preliminary report.**

Drewry, D.J., et al. Cambridge, Scott Polar Research Institute, Mar. 1979. 21p. + Append., 12 refs.

Meldrum, D.T.

**Ice cover thickness, Radio echo soundings, Subglacial observations, Rheology, Ice sheets, Glacier surfaces, Glacier surveys.**

Progress achieved during the 6th season of an airborne radio echo sounding program is reported by the Scott Polar Research Institute in cooperation with the National Science Foundation Division of Polar Programs. The Electromagnetics Institute of the Technical University of Denmark is reported. Broad aims of the program are to establish and complete a 100 km grid network over Antarctica for study of surface form, thickness, internal structure, rheology, thermodynamics, electrical properties, basal conditions and processes (including sub-ice water bodies, melting and freezing beneath ice shelves), and sub-ice geology. With completion of the 1978-79 season, the radio echo sounding coverage of Antarctica is estimated to be 50% under the NSF-SPRI-ILD program, 14% by other groups, and 36% still awaiting coverage. Equipment used and operations conducted by the NSF-SPRI-ILD program in 1978-79 are described and scientific results are outlined.

34-2065

**Calculation of correlation functions for two-dimensional square ice.**

Yanagawa, A., Pittsburgh, Pa., Carnegie-Mellon University, 1979. 235p., University Microfilms order No. 79-19,159, Ph.D. thesis. For abstract see Dissertation abstracts international, Sec.B, Nov. 1979, p.2258.

**Ice physics, Analysis (mathematics).**

34-2066

**Deuterium and snow hydrology.**

Judy, C.H., Fort Collins, Colorado State University, 1970. 107p., University Microfilms order No.71-5339, Ph.D. thesis. For abstract see Dissertation abstracts international, Sec.B, Mar. 1971, p.5461.

**Snow hydrology, Metamorphism (snow), Meltwater, Isotope analysis, Sublimation, Mass transfer.**

34-2067

**Freezing and thawing mechanisms in lime stabilized soils.**

Esmer, E., Blacksburg, Virginia Polytechnic Institute, 1969. 204p., University Microfilms order No.69-19,972, Ph.D. thesis. For abstract see Dissertation abstracts international, Sec.B, Dec. 1969, p.2676.

**Freeze thaw cycles, Soil strength, Soil stabilization, Frost resistance, Clay soils, Compressive properties.**

34-2068

**Development of a one-cycle slow freeze test for identifying aggregates susceptible to freeze-thaw deterioration.**

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- 34-2139**  
Effect of prefreezing on the strength and deformation properties of granular soils. Frydman, S., et al. *Soils and foundations*, Dec. 1979, 19(4), p.31-42, 9 refs.  
Melnik, J., Baker, R.  
Soil freezing, Core samplers, Soil strength, Freeze thaw tests, Soil deformation, Artificial freezing.
- 34-2140**  
How to drill and produce in the Beaufort Sea. Bleakley, W.B., *Petroleum engineer international*, Feb. 1980, 52(2), p.23-32.  
Sea ice, Offshore drilling, Artificial islands, Ice pileup, Slope protection.
- 34-2141**  
Presentation of sea ice ridges in general and physical characteristics of Baltic ridges for ship resistance calculations. Keinonen, A., *Helsinki/Stockholm. Winter Navigation Research Board. Research report*, Apr. 1978, No.24, 19p. + 14 figs., 21 refs.  
Sea ice, Pressure ridges, Ice structure, Ice navigation, Ice friction.
- 34-2142**  
Potential interactions between pipelines and terrain in a northern environment. Van Everdingen, R.O., Canada. *Inland Waters Directorate. National Hydrology Research Institute. Paper*, 1979, No.8, 7p., In English with French summary. 6 refs.  
Pipelines, Environmental impact.
- 34-2143**  
Ice and landing surface demoulding—replica fabrication. Lundström, G., *Ulvunda, Sweden. Flygtekniska försöksanstalten. FFA memorandum*, July 1973, No.90, 12p., 8 refs.  
Replicas, Runways, Icing.
- 34-2144**  
Comparative mechanisms of cold adaptation. Underwood, L.S., ed. American Institute of Biological Sciences. Annual Meeting, 28th, East Lansing, Michigan, Aug. 1977. Proceedings, New York, Academic Press, 1979, 379p., Contains 12 papers with discussions.  
Tieszen, L.L., ed. Callahan, A.B., ed. Folk, G.E., ed. DLC QP82.2C6C64  
Tundra, Plants (botany), Cold tolerance, Models.
- 34-2145**  
Proceedings. Symposium on Antarctic Meteorology and Glaciology, 1st, Tokyo, Dec. 1978, *Antarctic record*, Oct. 1979, No.67, 180p., In English or Japanese. Refs.  
Glaciology, Meetings.  
The conference was held at the National Institute of Polar Research with the aim of summarizing and evaluating all recent meteorological and glaciological work done by JARE under the POLEX program. The volume contains 5 papers in glaciology, 5 in meteorology, 2 in cloud physics, and 3 on oxygen isotope studies. The primary concern of contributors was the interaction between the atmosphere and cryosphere at and near the air-ice interface in inland Antarctica. Some observations in coastal areas are included.
- 34-2146**  
Summary of glaciological studies in Mizuho Plateau, East Antarctica, 1969-1975. Ishida, T., *Antarctic record*, Oct. 1979, No.67, p.1-10. In Japanese with English summary. Refs. p.5-10.  
Ice sheets, Glaciology, Research projects, Antarctica—Mizuho Plateau.  
A summary report of the traverse glaciology project accomplished by the Japanese Antarctic Research Expedition in 1969-1975 was published in 1978 under the title of "Glaciological Studies in Mizuho Plateau, East Antarctica, 1969-1975" as a special issue of National Institute of Polar Research, No.7. (See 32-2701 or F-19819). This paper outlines that summary report.
- 34-2147**  
Growth rates of crystal grains in snow at Mizuho Station, Antarctica. Narita, H., et al. *Antarctic record*, Oct. 1979, No.67, p.11-17, 16 refs.  
Maeno, N.  
Snow crystal growth, Snow accumulation, Climatology, Antarctica—Mizuho Plateau.  
Measurements of the mean cross-sectional area of crystal grains in snow were made with core samples drilled at Mizuho Station, Antarctica. It was found that the cross-sectional area of crystal grains in snow increased with increasing depth to a depth of about 50 m. The relationship between the cross-sectional area of crystal grains and the time elapsed was essentially linear, but the growth rate of crystal grains was larger in snow at depths below 35 m. The increase in the growth rate can be attributed to the stress-enhancement or the smaller rate of snow accumulation. From the growth rate of crystal grains in snow above 35 m, the net accumulation rate at Mizuho Station was estimated to be roughly 70 kg/sq m/a. (Auth.)
- 34-2148**  
Compactive viscosity of snow and its climatic implications at Mizuho Station, Antarctica. Maeno, N., et al. *Antarctic record*, Oct. 1979, No.67, p.18-31, Refs. p.30-31.  
Narita, H.  
Snow accumulation, Snow compaction, Climatology, Viscosity, Snow density, Snow physics, Antarctica—Mizuho Plateau, Antarctica—Byrd Station, Antarctica—Little America V.  
The compactive viscosity coefficient of snow was obtained from a density profile at Mizuho Station. The value of the compactive viscosity coefficient was by two orders of magnitude larger than that of ordinary seasonal snow. The large value was attributed to strong bonds between constituent ice particles within antarctic snow which had been aged for prolonged periods. A sharp peak of the compactive viscosity coefficient was found in a limited range of the depth around 35 m that is in a range of the density around 750 kg/cu m. In the depth range from 30 m to 40 m the layer-to-layer densities varied largely and the mean density deviated markedly from a smoothed general trend. These results suggest that a colder climate occurred repeatedly and lasted approximately 300 years before the present in the vicinity of Mizuho Station. (Auth.)
- 34-2149**  
Some problems in stratigraphic analysis of firn in Mizuho Plateau, East Antarctica. Watanabe, O., et al. *Antarctic record*, Oct. 1979, No.67, p.32-50. In Japanese with English summary. 16 refs.  
Kato, K., Satew, K.  
Firn, Snow accumulation, Isotope analysis, Firn stratification, Oxygen isotopes, Radioactive isotopes, Stratigraphy, Climatology, Antarctica—Mizuho Plateau.  
Long-term variations in precipitation and surface temperature near Mizuho Station were studied by means of stratigraphic analyses of 150-m boring core. In this paper, some problems on snow stratigraphy concerning the analyses are discussed.



First, problems on the unit of stratification are discussed in relation to visible stratigraphic elements and deposition-erosion processes. Second, phenomena of a missing layer corresponding to the hiatus in the layer formation are discussed in relation to regional characteristics and frequency of those occurrences. Precise estimation of mean annual accumulation in a certain period may be impossible without a quantitative rating of hiatus duration, and establishment of an effective method of rating should be the most important subject for the stratigraphic study. Delta-18-oxygen vertical profiles in snow layer are investigated, using the data obtained from a high-accumulation area in terms of reconsideration of the classical interpretation. As a result, it is found that a part of delta-18-oxygen oscillation was due to the variation by isotopic discrimination under snow metamorphism. (Auth.)

34-2150

**Sublimation and condensation at the ice sheet surface of Mizuho Station, Antarctica.**

Fujii, Y., *Antarctic record*, Oct. 1979, No.67, p.51-63, 6 refs.

**Ice sheets, Ice air interface, Sublimation, Ice sublimation, Condensation, Ice surface, Glacier mass balance, Antarctica—Mizuho Plateau.**

Sublimation and condensation were estimated by three different methods, that is, anemometer, bulk formula and stake methods, at Mizuho Station from Feb. 1977 to Jan. 1978. The comparison of the three different methods of obtaining the sublimation rate in the summer of 1977-1978 showed a satisfactory agreement, especially in the weekly values. Condensation prevails from the middle of April to the middle of September and sublimation in the remaining seven months. The daily amount of sublimation showed its maximum, 92 mg/sq cm, on December 22 when solar radiation was at a maximum. The annual amounts of sublimation and condensation are estimated to be 4.92 g/sq cm and 0.19 g/sq cm, respectively. The present study implies that sublimation plays an important role in the heat and mass exchanges at the surface and in the metamorphism of surface texture. (Auth.)

34-2151

**Numerical simulation of katabatic wind profile at Syowa Station, Antarctica.**

Adachi, T., *Antarctic record*, Oct. 1979, No.67, p.64-74, 14 refs.

**Wind (meteorology), Glacial meteorology, Antarctica—Showa Station.**

The vertical profiles of the strong katabatic winds at Syowa Station, Antarctica, are studied. A numerical solution of the equations of the Ekman layer above the antarctic coastal slope is obtained. It is shown that the results of the numerical simulation of the strong katabatic wind profile agree well with the observed strong katabatic wind profiles at Showa Station. (Auth. mod.)

34-2152

**Some characteristics of turbulence in katabatic winds over Mizuho Plateau, East Antarctica.**

Kobayashi, S., et al., *Antarctic record*, Oct. 1979, No.67, p.75-85, 20 refs.

Ishida, T.

**Wind (meteorology), Snow surface, Surface roughness, Turbulence, Antarctica—Mizuho Plateau.**

Wind turbulence was observed, using sonic anemometers, on a snow surface at Mizuho Station and on a bare ice field near the Yamato Mountains in the Mizuho Plateau in 1973 by the party of the 14th Japanese Antarctic Research Expedition. Observations revealed, as to katabatic winds blowing above the two places, that the one above the latter is characterized by the presence of a hydraulic jump generated by nunataks there, resulting in a stronger turbulence than the one above the former which is stationary. Hence, a comparison is made in this paper between characteristics of turbulence and a hydraulic jump in a katabatic wind. (Auth.)

34-2153

**Preliminary study on the structure of the atmospheric surface layer in Mizuho Plateau, East Antarctica.**

Sasaki, H., *Antarctic record*, Oct. 1979, No.67, p.86-100, 11 refs.

**Glacial meteorology, Temperature gradients, Wind (meteorology), Antarctica—Mizuho Plateau.**

A preliminary study on the structure of the atmospheric surface layer in Mizuho Plateau was made, based on the profiles and fluctuations of wind and air temperature observed at Mizuho Station during the period June-Dec. 1972. The results are summarized. High frequency of slightly stable conditions and low frequency of unstable conditions were a characteristic feature. Mean value of roughness length was 0.24 cm, larger by one order than the values at Showa Station and the South Pole. The distributions of the power spectra of wind and temperature fluctuations and those of the cospectra of heat flux were similar to the results reported by many investigators. Temperature oscillations, which seemed to be caused by internal wave motions, were observed in winter. (Auth.)

34-2154

**Oxygen isotopic composition of fallen snow in Antarctica.**

Kato, K., *Antarctic record*, Oct. 1979, No.67, p.124-135, 14 refs.

**Oxygen isotopes, Isotope analysis, Snow composition, Precipitation (meteorology), Antarctica—Showa Station.**

The relationship between the oxygen isotopic composition of fallen snow at Showa Station and the transportation process of

water vapor to the antarctic ice sheet has been investigated. It is found that the oxygen isotopic composition of fallen snow is largely controlled by the supply of oxygen-18-rich water vapor resulting from the approach of a circumpolar cyclone, and is closely related to the distance between the open sea and the sampling station. Taking into consideration the transportation process of water vapor to the antarctic ice sheet, the correlation between the temperature of formation and the oxygen isotopic composition of fallen snow provides information about the formation process of snow. The correlation between the monthly means of the oxygen isotopic composition of fallen snow and the surface air temperature also provides information about the formation process of snow. (Auth.)

34-2155

**Oxygen isotopic composition of drifting snow in Mizuho Plateau, Antarctica.**

Kato, K., et al., *Antarctic record*, Oct. 1979, No.67, p.136-151, 19 refs.

In Japanese with English summary.

Watanabe, O., Satow, K.

**Oxygen isotopes, Isotope analysis, Snow composition, Climatic factors, Wind factors, Antarctica—Mizuho Plateau.**

Oxygen isotopic composition of drifting snow sampled at the various stations along the traverse routes in Mizuho Plateau was determined in order to investigate transportation of water vapor to antarctic ice sheet resulting from the approach of a circumpolar cyclone. The oxygen isotopic composition of drifting snow in every season at the stations below 1800 m in altitude is largely controlled by the supply of oxygen-18-rich water vapor resulting from the approach of a circumpolar cyclone, but it is not so at the stations above 2000 m. A large anomaly is found in the variation with altitude of oxygen isotopic composition of drifting snow at the stations at altitudes between 3100 and 3200 m in (austral) spring. The area where the anomaly is found is the boundary between the spheres of influence of circumpolar cyclones and antarctic anticyclones, and it changes its position seasonally. In winter, Mizuho Station (2230 m in altitude) is considered to be hardly influenced by circumpolar cyclones. (Auth.)

34-2156

**Oxygen isotopic composition of snow formed under an antarctic anticyclone.**

Kato, K., et al., *Antarctic record*, Oct. 1979, No.67, p.152-163, In Japanese with English summary. 21 refs.

Higuchi, K.

**Oxygen isotopes, Isotope analysis, Snow composition, Precipitation (meteorology), Climatic factors, Wind factors, Antarctica—Mizuho Plateau.**

In order to investigate the formation process of snow under an antarctic anticyclone and the transportation process of water vapor into the anticyclone, the oxygen isotopic composition of fallen snow at Showa Station and drifting snow and firn in Mizuho Plateau was determined. Fallen snow at Showa Station is formed by the isobaric cooling process from a cloud layer under the upper inversion. Water vapor is transported to the antarctic anticyclone and subsides in it. Snow is formed by the isobaric cooling process under the subsidence inversion. The surface air temperature is much lower than the temperature of formation of snow. Therefore, on ice sheet, water vapor moves from fallen snow to surface snow. The systematic decrease of oxygen isotopic composition of snow with depth is formed in the snow cover with well-developed depth-hoar of upward crystal growth under the influence of an antarctic anticyclone, whereas the systematic increase results from depth-hoar with downward crystal growth under the influence of a circumpolar cyclone. (Auth.)

34-2157

**Axial flow wind air-turbine NU-102 with electric eddy-current brake.**

Awano, S., et al., *Tokyo. National Institute of Polar Research. Memoirs. Series F, Logistics*, Oct. 1979, No.3, 57p., 2 refs.

Murayama, M., Takeuchi, S.

**Electric power, Wind power generation, Antarctica—Showa Station.**

A new axial-flow wind air-turbine NU-102, having an external diameter of 1.2 m, was developed in 1977 by the authors for harnessing the energy of high speed winds in Antarctica. This multi-blade wind-turbine is featured by the presence of a stator before the rotor, which enables the turbine to give a higher power, a higher torque at a lower rotational speed than an ordinary wind air-turbine. A 3-kW AC-DC generator is driven by the air-turbine through a planetary speed-up gear of speed ratio 6. The rotational speed of this generator can automatically be kept at a desired value, even in violent blizzards by means of an electric eddy-current brake newly developed by the authors. The brake also affords a new means for converting the wind energy directly into heat through the liquid heated in the jacket of the brake-stator. The present report describes the design of the whole system, the general performance of the air-turbine, and the combined performance of the wind-turbine and generator evaluated in wind-tunnel tests and field tests at Showa Station. The field tests have proved that a generator output of 2.4 kW can be obtained at a wind velocity of 30 m/s, and that the rotational speed of the generator can be kept at a desired value for variable loads and wind velocities exceeding 30 m/s. (Auth.)

34-2158

**Earth science investigations in the United States Antarctic Research Program (USARP) for the period July 1, 1978-June 30, 1979.**

Craddock, C., comp. Washington, National Academy of Sciences, 1979, 50p., Refs.

**National Research Council. Polar Research Board. Research projects, Bibliographies, Ice sheets, Glacial geology.**

This is the eleventh in a series of annual reports on work in the earth sciences carried out as a part of the U.S. Antarctic Research Program. The material is arranged alphabetically by investigator, with affiliation, laboratory and field work, publications issued or in press, and future programs. Two tables of contents are provided; one arranged alphabetically by investigator, and the other by institution.

34-2159

**Report on United States antarctic research activities for February 1976-October 1977; United States antarctic research activities planned for October 1977-September 1978.**

National Research Council. Polar Research Board, *National Academy of Sciences-National Research Council. Report to SCAR*, June 1977, No.19, 77p., Refs. p.55-65.

**Research projects, Antarctica.**

Information is presented on the U.S. Antarctic Research Program completed during the period Feb. 1976 to Mar. 1977, in progress from Mar. 1977 to Oct. 1977, and planned for Oct. 1977 through Sep. 1978. Research activities in the fields of atmospheric sciences, earth sciences, and biology are summarized, as well as research vessel operations, and information activities. U.S. stations and scientific personnel, World Data Center A subcenters, and members of the Polar Research Board and SCAR working groups are listed. A bibliography is included.

34-2160

**Report on United States antarctic research activities for February 1977-October 1978; United States antarctic research activities planned for October 1978-September 1979.**

National Research Council. Polar Research Board, *National Academy of Sciences-National Research Council. Report to SCAR*, June 1978, No.20, 87p., Refs. p.55-75.

**Research projects, Antarctica.**

Information is presented on the U.S. Antarctic Research Program completed during the period Feb. 1977 to Mar. 1978, in progress from Mar. 1978 to Oct. 1978, and planned for Oct. 1978 through Sep. 1979. Research activities in the fields of atmospheric sciences, earth sciences, and biology are summarized, as well as research vessel operations, and information programs. Personnel, World Data Center A subcenters, and the members of the Polar Research Board and SCAR working groups are listed. A bibliography is included.

34-2161

**Report on United States antarctic research activities for February 1978-October 1979; United States Antarctic research activities planned for October 1979-September 1980.**

National Research Council. Polar Research Board, *National Academy of Sciences-National Research Council. Report to SCAR*, June 1979, No.21, 92p., Refs. p.61-80.

**Research projects, Antarctica.**

This report contains information on the U.S. Antarctic Research Program completed during the period Feb. 1978 to Mar. 1979, in progress from Mar. 1979 to Oct. 1979, and planned for Oct. 1979 through Sep. 1980. Activities in the following areas are reported: atmospheric sciences, earth sciences, biology, research vessel operations, and information programs. In addition, listings are provided of U.S. stations and scientific personnel, World Data Center A subcenters, and the memberships of the Polar Research Board and SCAR working groups. A bibliography is included.

34-2162

**British Antarctic Survey, 1978-79. Polar record**, Sep. 1979, 19(123), p.605-612.

**Research projects, Glaciology, Ice shelves, Snow surveys, Ice cores.**

Five main British Antarctic Survey stations were occupied throughout the year: Faraday, Halley, Signy, Grytviken, and Rothera. Support for research programs and relief operations were provided by the two BAS ships, *John Biscoe* and *Bransfield*, with assistance from two Twin Otter aircraft and HMS *Endurance*. The research program included studies in marine biology, limnology, terrestrial biology, geology and land geophysics, glaciology, and the atmospheric sciences. During the season, the new Rothera station was completed and a new ionospheric laboratory was installed at Halley. The Rothera complex has aroused considerable international interest.

34-2163

**Model of a stochastically driven ice sheet with planetary wave feedback.**

Oerlemans, J., *Tellus*, Dec. 1979, 31(6), p.469-477, With Russian summary. 31 refs.

**Ice sheets, Ice models, Ice mechanics.**

- 34-2164**  
Ice thickness climatology for Canadian stations. Richardson, F.A., et al. Toronto, Canada, 1975, 60p., 14 refs.  
Burns, B.M.  
Ice cover thickness, Snow depth, Climatology, Statistical analysis, Canada.
- 34-2165**  
Alaska energy project phase 2: planning energy technologies for a new Alaska community. Final report. Alaska. Department of Commerce and Economic Development. Division of Energy and Power Development, Anchorage, Alaska, 1978, 206p., RLO-1002-TO3, 16 refs.  
Urban planning, Environmental impact, Energy conservation.
- 34-2166**  
Investigations of the basic forces involved in the adhesion of ice to highway surfaces. Ashworth, T., et al. U.S. Department of Transportation. University research report, Sep. 1979, DOT/RSPA/DPB-50/79/28, 109p., 65 refs.  
Weyland, J.A.  
Ice adhesion, Ice strength, Interfacial tension, Roads, Temperature effects.
- 34-2167**  
Internal friction of ice. Oguro, M., *Seppyo*, Dec. 1979, 41(4), p.233-237, In Japanese with English summary. 15 refs.  
Ice friction, Internal friction, Latticed structures.
- 34-2168**  
Movement of dislocations in ice and its plastic deformation. Fukuda, A., *Seppyo*, Dec. 1979, 41(4), p.239-244, In Japanese with English summary. 11 refs.  
Ice deformation, Plastic deformation, X ray analysis.
- 34-2169**  
Friction of ice. Tushina, K., *Seppyo*, Dec. 1979, 41(4), p.245-251, In Japanese with English summary. 30 refs.  
Ice friction, Ice mechanics, Ice adhesion.
- 34-2170**  
Structure and properties of grain boundaries in ice. Hondoh, T., *Seppyo*, Dec. 1979, 41(4), p.253-257, In Japanese with English summary. 22 refs.  
Ice structure, Boundary layer.
- 34-2171**  
Twin structures in ice. Furukawa, Y., *Seppyo*, Dec. 1979, 41(4), p.259-265, In Japanese with English summary. 37 refs.  
Ice crystal structure, Snow crystal structure, Snow crystal growth.
- 34-2172**  
Time series analyses on the maximum depth of snow cover in Akita city. Ito, T., *Seppyo*, Dec. 1979, 41(4), p.267-275, In Japanese with English summary. 19 refs.  
Snow depth, Climatology, Periodic variations, Statistical analysis.
- 34-2173**  
Upper limits of heaving pressure obtained by observing pore water pressure under partial soil freezing. Takashi, T., et al. *Seppyo*, Dec. 1979, 41(4), p.277-287, In Japanese with English summary. 28 refs.  
Ohrai, T., Yamamoto, H., Okamoto, J.  
Frost heave, Soil water migration, Water pressure, Unfrozen water content, Ice lenses.
- 34-2174**  
Soviet glaciological investigations in 1978. (Sovetskie glatsiologicheskie issledovaniia v 1978 godu). Kotliakov, V.M., et al. *Akademiia nauk SSSR. Institut geografii. Materialy glatsiologicheskikh issledovanih. Khronika obsuzhdeniia*, 1979, Vol.35, p.5-12, In Russian.  
Lapina, I.I.A.  
Polar regions, Glaciation, Mountain glaciers, Glacial hydrology, Alimentation, Ice conditions, Glacier ablation, Ice drills, Moraines, Glacier oscillation.  
Glaciological research projects conducted by Soviet institutions during 1978 in various parts of the USSR, in the Arctic and the Antarctic are outlined. Antarctic programs included participation of the Institute of Geography in the IAGP. Highlights of this program were the discovery of a relatively warm water mass near the bottom of the Ross Sea, taking of an 800 m core at Novolazarevskaya, the formulation of an antarctic model of glaciation, and development of an algorithm for calculating the movement and thermal state of large ice sheets. The Institute of Mechanics of Moscow State University worked out a method of computing ice temperature and rate of accumulation from the horizontal projection of the tongue of a stationary glacier. From ancient moraines of Meserve Glacier, atmospheric temperature and precipitation variations in McMurdo Sound were computed for the last million years.
- 34-2175**  
International symposium on computation and forecasting of runoff from glaciers and glaciated areas. (Mezhdunarodnyi simpozium po raschetu i prognozu stoka s lednikov i iz lednikovyykh raiionov). Chizhov, O.P., *Akademiia nauk SSSR. Institut geografii. Materialy glatsiologicheskikh issledovanih. Khronika obsuzhdeniia*, 1979, Vol.35, p.13-19, In Russian.  
Meetings, Glaciology, Glacial hydrology, Glacial lakes, Glacier surfaces, Heat transfer, Heat balance, Glacier ablation, Models.
- 34-2176**  
Workshop on the world glacier inventory and meeting of the snow and ice commission in Switzerland. (Seminarn po vseмирnomu katalogu lednikov i zasedaniia komissii snega i l'da v Shvetsarii). Kotliakov, V.M., et al. *Akademiia nauk SSSR. Institut geografii. Materialy glatsiologicheskikh issledovanih. Khronika obsuzhdeniia*, 1979, Vol.35, p.19-24, In Russian.  
Dreier, N.N., Makarevich, K.G., Suslov, V.F.  
Meetings, Glaciers, Alpine glaciation, Snow cover, Ice cover, Research projects.
- 34-2177**  
Glacial-nival systems of the Pamirs and Gissar-Alay. (Nival'no-glatsial'nye sistemy Pamira i Gissaro-Alai). Kotliakov, V.M., et al. *Akademiia nauk SSSR. Institut geografii. Materialy glatsiologicheskikh issledovanih. Khronika obsuzhdeniia*, 1979, Vol.35, p.25-33, In Russian with English summary. 24 refs.  
Krenke, A.N.  
Glaciers, Naleds, Ground ice, Snow cover distribution, Glacier ablation, Alimentation.
- 34-2178**  
Extent of glaciation in the Pamirs and factors affecting it. (Stepen' oledeneniia Pamira i opredelaiushchie ee faktory). Rototava, O.V., *Akademiia nauk SSSR. Institut geografii. Materialy glatsiologicheskikh issledovanih. Khronika obsuzhdeniia*, 1979, Vol.35, p.33-41, In Russian with English summary. 11 refs.  
Glaciation, USSR—Pamirs.
- 34-2179**  
Plotting elevations of the alimentation and accumulation lines for Gissar-Alay glaciers. (Postroenie polet vysoty granitsy pitaniia i akumulatsii dlia lednikovoy sistemy Gissaro-Alai). Rototava, O.V., *Akademiia nauk SSSR. Institut geografii. Materialy glatsiologicheskikh issledovanih. Khronika obsuzhdeniia*, 1979, Vol.35, p.42-51, In Russian with English summary. 21 refs.  
Mountain glaciers, Alimentation, Glacier ablation, Mass balance, Snow line, Glacier surfaces, Heat balance, Snow cover distribution, Charts.
- 34-2180**  
Data on glaciological processes in the recrystallization zone of ice formation in highlands. (Nekotorye dannye o glatsiologicheskikh protsessakh v vysokogornoi rekristallizatsionnoi zone l'doobrazovaniia). Diurgerov, M.B., *Akademiia nauk SSSR. Institut geografii. Materialy glatsiologicheskikh issledovanih. Khronika obsuzhdeniia*, 1979, Vol.35, p.52-56, In Russian with English summary. 5 refs.  
Alpine glaciation, Ice formation, Glacier surfaces, Snow cover distribution, Alimentation, Snow accumulation, Snow recrystallization.
- 34-2181**  
Vertical air temperature gradients in the Pamirs. (K voprosu o vertikal'nykh gradientakh temperatury vozdukh na Pamire). Davidovich, N.V., *Akademiia nauk SSSR. Institut geografii. Materialy glatsiologicheskikh issledovanih. Khronika obsuzhdeniia*, 1979, Vol.35, p.56-61, In Russian with English summary. 7 refs.  
Mountain glaciers, Glacier surfaces, Air temperature, Temperature gradients, Glacial meteorology, Mapping.
- 34-2182**  
Vegetational indices of precipitation in the Alpine belts of the Pamirs. (Fitotindikatsiia osadkov v vysokogornyykh poiasakh Pamiraj). Agakhanians, O.E., et al. *Akademiia nauk SSSR. Institut geografii. Materialy glatsiologicheskikh issledovanih. Khronika obsuzhdeniia*, 1979, Vol.35, p.61-67, In Russian with English summary. 3 refs.  
Kadomtseva, T.G., Savich, A.A.  
Precipitation (meteorology), Alpine landscapes, Plant ecology, Ecosystems, USSR—Pamirs.
- 34-2183**  
Mineralization of glacial rivers in the Pamirs. (Mineralizatsiia rek Pamira s lednikovym pitaniem). Krenke, A.N., et al. *Akademiia nauk SSSR. Institut geografii. Materialy glatsiologicheskikh issledovanih. Khronika obsuzhdeniia*, 1979, Vol.35, p.67-71, In Russian with English summary. 12 refs.  
Lysakovskii, V.V., Tsigel'naia, I.D.  
Glacial rivers, Alimentation, Water chemistry, Mountain glaciers, Glacial hydrology.
- 34-2184**  
Ground ice and naleds in the Pamirs. (O podzemnykh l'dakh i nalediakh Pamiraj). Koreisha, M.M., *Akademiia nauk SSSR. Institut geografii. Materialy glatsiologicheskikh issledovanih. Khronika obsuzhdeniia*, 1979, Vol.35, p.71-76, In Russian with English summary. 11 refs.  
Permafrost distribution, Naleds, Ground ice, Permafrost hydrology, USSR—Pamirs.
- 34-2185**  
Summer heat balance and environmental conditions of periglacial naleds in the Pamirs. (Osobennosti teplovogo balansia i uslovii sushchestvovaniia prilednikovyykh naledei Pamira v etnee vremia). Lebedeva, I.M., *Akademiia nauk SSSR. Institut geografii. Materialy glatsiologicheskikh issledovanih. Khronika obsuzhdeniia*, 1979, Vol.35, p.76-81, In Russian with English summary. 12 refs.  
Alpine landscapes, Glacial hydrology, Naleds, Water supply, Moraines, Water pollution.
- 34-2186**  
Geological action of glaciers in the Eastern Pamirs. (O geologicheskoi deiatel'nosti lednikov Vostochnogo Pamiraj). Demchenko, V.V., *Akademiia nauk SSSR. Institut geografii. Materialy glatsiologicheskikh issledovanih. Khronika obsuzhdeniia*, 1979, Vol.35, p.81-85, In Russian with English summary. 3 refs.  
Mountain glaciers, Glacier flow, Glacial erosion, Snow cover distribution, Alimentation, Moraines, Glacial hydrology, Runoff.
- 34-2187**  
Late quaternary ice cover of the Pamirs. (Pozdnetchetvertichnyi lednikovyi chekhol Pamiraj). Grosval'd, M.G., et al. *Akademiia nauk SSSR. Institut geografii. Materialy glatsiologicheskikh issledovanih. Khronika obsuzhdeniia*, 1979, Vol.35, p.85-97, In Russian with English summary. 32 refs.  
Orlankin, V.N.  
Alpine glaciation, Origin, Ice formation, Topographic effects, Mountain glaciers, Maps, USSR—Pamirs.
- 34-2188**  
Physiographic regionalization of the Pamirs. (K voprosu o fiziko-geograficheskom raiionirovanii Pamiraj). Kadomtseva, T.G., *Akademiia nauk SSSR. Institut geografii. Materialy glatsiologicheskikh issledovanih. Khronika obsuzhdeniia*, 1979, Vol.35, p.98-100, In Russian with English summary. 12 refs.  
Alpine glaciation, Topographic effects, Glacier flow, Glacial erosion, Glacial hydrology, Glacial rivers, Alpine landscapes, Charts.
- 34-2189**  
Regionalization of the Pamirs for tourist maps. (Opyt rekreatsionnogo raiionirovaniia Pamiraj). Suprunenko, I.U.P., *Akademiia nauk SSSR. Institut geografii. Materialy glatsiologicheskikh issledovanih. Khronika obsuzhdeniia*, 1979, Vol.35, p.101-108, In Russian with English summary. 17 refs.  
Alpine glaciation, Alpine landscapes, Mapping, USSR—Pamirs.
- 34-2190**  
Snow cover of the Altai-Sayan area. (Snezhnyi pokrov Altai-Saianskoi oblasti). Reviakin, V.S., et al. *Akademiia nauk SSSR. Institut geografii. Materialy glatsiologicheskikh issledovanih. Khronika obsuzhdeniia*, 1979, Vol.35, p.109-120, In Russian with English summary. 48 refs.  
River basins, Snow cover distribution, Snow water equivalent, Alpine landscapes, Snow depth, Snow density, Charts.

34-2191

Snow cover distribution in the mountains of Tadzhikistan. (Osobennosti zaleganiia snezhnogo pokrova v gornyykh rayonakh Tadzhikistana). Burichenko, A.I., et al, *Akademiia nauk SSSR. Institut geografii. Materialy glatsiologicheskikh issledovanih. Khronika obsuzhdeniia*, 1979, Vol.35, p.120-126, In Russian with English summary. 5 refs. Popova, L.V.

River basins, Snow cover distribution, Mapping, Snow depth, Snow water equivalent, USSR—Tadzhikistan.

34-2192

Topographic effect on snow cover distribution in mountains. (Zakonornosti vliianiia rel'efa na zaleganie snezhnogo pokrova v gornyykh rayonakh). Chirkova, A.A., *Akademiia nauk SSSR. Institut geografii. Materialy glatsiologicheskikh issledovanih. Khronika obsuzhdeniia*, 1979, Vol.35, p.126-133, In Russian with English summary. 7 refs.

River basins, Snow cover distribution, Snow depth, Snow surveys, Snow accumulation, Topographic factors, Meteorological factors, Mountains.

34-2193

Two criteria determining the structure of snow surveying and precipitation measuring networks in mountain basins. (O dvukh kriteriiakh, opredeliayushchikh sostav snegomerno-osadkomernoi seti v gornyykh basseynakh). Getker, M.I., et al, *Akademiia nauk SSSR. Institut geografii. Materialy glatsiologicheskikh issledovanih. Khronika obsuzhdeniia*, 1979, Vol.35, p.133-139, In Russian with English summary. 6 refs. Shentsis, I.D.

River basins, Snow surveys, Snow cover distribution, Snow depth, Snow water equivalent.

34-2194

Landscape-geographic technique of mapping snow cover under complicated orographic conditions. (Landsaftno-geograficheskii metod kartirovaniia snezhnogo pokrova v usloviakh slozhnoi orografii). Kondakova, N.L., *Akademiia nauk SSSR. Institut geografii. Materialy glatsiologicheskikh issledovanih. Khronika obsuzhdeniia*, 1979, Vol.35, p.139-143, In Russian with English summary. 3 refs.

Mountains, Snow surveys, Mapping, Snow accumulation, Snow depth, Avalanche forecasting.

34-2195

Extreme snow conditions and their role in landscape formation. (Ekstremal'nye usloviia snezhnosti i ikh rol' v formirovaniia landsafta). Iashina, A.V., *Akademiia nauk SSSR. Institut geografii. Materialy glatsiologicheskikh issledovanih. Khronika obsuzhdeniia*, 1979, Vol.35, p.143-146, In Russian with English summary. 6 refs.

Landscape types, Snow cover distribution, Snow drifts, Snow depth, Snow recrystallization, Snow cover stability, Avalanches, Landscape development.

34-2196

Satellite surveys of snow cover for calculating spring flood hydrographs. (Aerokosmicheskie metody izucheniia snezhnogo pokrova i ikh ispol'zovanie dlia rascheta gidrografa vesennego polovo'diia). Deleur, M.S., *Akademiia nauk SSSR. Institut geografii. Materialy glatsiologicheskikh issledovanih. Khronika obsuzhdeniia*, 1979, Vol.35, p.146-154, In Russian with English summary. 4 refs.

Aerial surveys, Spaceborne photography, Snow cover, Snow water equivalent, Flood forecasting.

34-2197

Analyzing distributions of maximum snow reserves on glaciers and improving snow surveying techniques. (Analiz raspredeleniia maksimal'nykh snegozapasov na lednikakh i ratsionalizatsiia snegomernykh rabot). Diurgerov, M.B., et al, *Akademiia nauk SSSR. Institut geografii. Materialy glatsiologicheskikh issledovanih. Khronika obsuzhdeniia*, 1979, Vol.35, p.155-159, In Russian with English summary. 5 refs.

Zhuk, V.A., Pylev, I.V.

Glacier surfaces, Snow cover distribution, Snow surveys, Glaciers, Water balance.

34-2198

Snow survey techniques in mountain glacier basins. (K metodike snegos'emok v gorno-lednikovyykh basseynakh). Zhukov, V.A., *Akademiia nauk SSSR. Institut geografii. Materialy glatsiologicheskikh issledovanih. Khronika obsuzhdeniia*, 1979, Vol.35, p.159-168, In Russian with English summary. 13 refs.

River basins, Mountain glaciers, Snow cover distribution, Snow surveys.

34-2199

Using distribution functions in calculating seasonal snow melting on slopes around the Dzhankuat glacier. (Isopol'zovanie funktsii raspredeleniia dlia raschetov taianiia sezonnogo snega na sklonakh, okruzhaiushchikh lednik Dzhankuat). Pylev, I.V., et al, *Akademiia nauk SSSR. Institut geografii. Materialy glatsiologicheskikh issledovanih. Khronika obsuzhdeniia*, 1979, Vol.35, p.169-173, In Russian with English summary. 12 refs.

Barke, V.V.

Mountain glaciers, Slope orientation, Snow cover distribution, Snow melting.

34-2200

High accuracy phototachymeters for studying glacier movement. (Primenenie vysokotochnogo svetodall'nomena dlia issledovaniia dvizheniia lednikov). Volkonskii, B.V., et al, *Akademiia nauk SSSR. Institut geografii. Materialy glatsiologicheskikh issledovanih. Khronika obsuzhdeniia*, 1979, Vol.35, p.173-178, In Russian with English summary. 5 refs.

Glacier flow, Flow rate, Measuring instruments.

34-2201

Studies of heat and mass transfer at the lower surface of the Ross Ice Shelf. (Issledovaniia teplo- i massoobmena nizhnii poverkhnosti shel'fovogo lednika Rossa). Zotikov, I.A., et al, *Akademiia nauk SSSR. Institut geografii. Materialy glatsiologicheskikh issledovanih. Khronika obsuzhdeniia*, 1979, Vol.35, p.178, In Russian.

Zagorodnov, V.S., Rafkovskii, I.U.V.

Ice shelves, Ice melting, Ice accretion, Subglacial observations, Water transport, Ocean currents, Ice water interface, Heat transfer, Phase transformations, Ice coring drills, Antarctica—Ross Ice Shelf.

A joint American-Soviet project, financed by the National Science Foundation for measuring mass balance at the lower Ross Ice Shelf surface, began in 1976/77. The program included measurements of accretion and melting rates at the ice-water interface, structure and movement of subglacial currents, and ice core drilling through the shelf. Phase transformations were studied by special ultrasonic devices. Quartz thermometers used indicated two subglacial isothermal water layers. Ice cores from a 416 m hole revealed an upper snow-firm layer 45 m thick followed by vesicular ice down to 410 m and the lower 6 meters of water permeable ice. Core samples obtained were prepared for further chemical and isotope analyses.

34-2202

Problems in studying glaciological terminology. (Glavnye zadachi terminologicheskoi raboty v oblasti glatsiologii). Kotliakov, V.M., *Akademiia nauk SSSR. Institut geografii. Materialy glatsiologicheskikh issledovanih. Khronika obsuzhdeniia*, 1979, Vol.35, p.179-184, In Russian with English summary.

Glaciology, Terminology, Mountain glaciers, Glacial hydrology, Periglacial processes, Glacier ice, Naleds, Ground ice, Snow cover, Avalanches, Theories, Research projects.

34-2203

Problems in glaciological terminology and ways of systematization. (Nekotorye problemy sovremennoi glatsiologicheskoi terminologii i puti ee sistematzatsii). Smolirova, N.A., *Akademiia nauk SSSR. Institut geografii. Materialy glatsiologicheskikh issledovanih. Khronika obsuzhdeniia*, 1979, Vol.35, p.184-191, In Russian with English summary. 22 refs.

Glaciology, Terminology.

34-2204

Geomorphological processes developing on artificial structures in the nivation-glaciation zone of the Khibiny Mountains. (Tekhnogennye geomorfologicheskie protsessy nivatsionno-glatsial'nol zony (na primere Khibiny)). Semekhin, I.U.V., et al, *Akademiia nauk SSSR. Institut geografii. Materialy glatsiologicheskikh issledovanih. Khronika obsuzhdeniia*, 1979, Vol.35, p.192-195, In Russian with English summary. 1 ref.

Miagkov, S.M., Vashchalova, T.V.

Quarries, Tailings, Slope processes, Solifluction, Ground ice, Rock glaciers, Periglacial processes.

34-2205

Glacial mudflows, not related to glacier-dammed lakes, in the Gerkhozhan-Su Basin, North Caucasus. (Formirovanie glatsial'nykh seli nepropryvnogo geneziia v basseine Gerkhozhan-Su na Severnom Kavkaze). Fleishman, S.M., et al, *Akademiia nauk SSSR. Institut geografii. Materialy glatsiologicheskikh issledovanih. Khronika obsuzhdeniia*, 1979, Vol.35, p.195-198, In Russian with English summary. 6 refs.

Seinova, I.B., Zolotarev, E.A.

Slope processes, Mudflows, Ground ice, Ice lenses, Ice melting.

34-2206

Hydrometeorological conditions of the formation of snow-loaded streams. (Gidrometeorologicheskie usloviia formirovaniia vodosnezhnykh potokov). Freidlin, V.S., *Akademiia nauk SSSR. Institut geografii. Materialy glatsiologicheskikh issledovanih. Khronika obsuzhdeniia*, 1979, Vol.35, p.198-200, In Russian with English summary. 5 refs.

Mountains, River basins, Slope processes, Runoff, Snow melting, Streams, Slush.

34-2207

Activities of snow-carrying streams. (Sledy deistviia vodosnezhnykh potokov). Sapunova, G.G., et al, *Akademiia nauk SSSR. Institut geografii. Materialy glatsiologicheskikh issledovanih. Khronika obsuzhdeniia*, 1979, Vol.35, p.201-202, In Russian with English summary. 3 refs.

Sapunov, V.N.

Slope processes, Snowmelt, Runoff, Slush, Streams, Erosion.

34-2208

Large runoff values from glacier basins located in the dry climate zone of the Altai. (O bol'shikh velichinakh stoka iz nekotorykh lednikovyykh basseynov v naibolee kontinental'nom ralone Altai). Gerasimenko, O.M., *Akademiia nauk SSSR. Institut geografii. Materialy glatsiologicheskikh issledovanih. Khronika obsuzhdeniia*, 1979, Vol.35, p.203-204, In Russian with English summary. 2 refs.

River basins, Mountain glaciers, Glacial hydrology, Runoff, Climatic factors.

34-2209

Pleistocene glaciation of Spitsbergen. (O pleistotsenovykh oledeneniiaakh na Shpitsbergene). Punning, I.A.-M.K., et al, *Akademiia nauk SSSR. Institut geografii. Materialy glatsiologicheskikh issledovanih. Khronika obsuzhdeniia*, 1979, Vol.35, p.204-208, In Russian with English summary. 9 refs.

Troitskii, L.S.

Moraines, Radioactive age determination.

34-2210

Moisture balance in the system Antarctic ice sheet surface-atmosphere. (Balans vlazi v sisteme "poverkhnost' lednikovogo pokrova Antarktidy-atmosfera"). Aver'ianov, V.G., *Akademiia nauk SSSR. Institut geografii. Materialy glatsiologicheskikh issledovanih. Khronika obsuzhdeniia*, 1979, Vol.35, p.209-211, In Russian with English summary. 4 refs.

Land ice, Ice sheets, Mass balance, Ice air interface, Moisture transfer, Evaporation, Antarctica.

Mass balance components of the ice sheet surface, related to atmospheric moisture cycles, were used in calculating moisture circulation in the whole system. Water balance structure in Antarctica was characterized by a very high runoff coefficient of 90% compared to 70% for the Arctic and 40% for the total land mass of the Earth. This difference is explained by surface specifics of the only continental ice cover of the planet and severe climate with insignificant atmospheric precipitation and very low evaporation from the surface.

34-2211

Thermal capacity of sea ice and its effect on ice cover melting in Arctic seas. (Effektivnaia teploemkost' morskogo l'da i ee vliianie na protsess taianiia ledianogo pokrova arkticheskikh morei). Falko, L.I., *Akademiia nauk SSSR. Institut geografii. Materialy glatsiologicheskikh issledovanih. Khronika obsuzhdeniia*, 1979, Vol.35, p.211-213, In Russian with English summary. 7 refs.

Sea ice, Polar regions, Heat capacity, Ice melting, Ice cover thickness, Water temperature, Subglacial observations.

34-2212

Mappable indices of glacier surface orientation. (O kartografirovannoi pokazatelei orientatsii poverkhnosti lednikov). Falko, L.I., *Akademiia nauk SSSR. Institut geografii. Materialy glatsiologicheskikh issledovanih. Khronika obsuzhdeniia*, 1979, Vol.35, p.214-216, In Russian with English summary. 8 refs.

Mountain glaciers, Glacier surfaces, Orientation, Maps.

34-2213

**Annotated list of Soviet literature on glaciology for 1976.** (Annotirovannyi spisok sovetskoi literatury po glatsiologii za 1976 god.)  
Kotliakov, V.M., et al. *Akademiia nauk SSSR. Institut geografii. Materialy glatsiologicheskikh issledovanih. Khronika obsuzhdeniia*, 1979, Vol.35, p.217-288. In Russian with English foreword. 660 refs.

Lapina, I.A., Chernova, L.P.

**Bibliographies, Glaciology.**

Contains 13 references on the Antarctic

34-2214

**Antarctica; commission reports, vol.18.** (Antarktika; doklady komissii, vypusk 18).  
Akademiia nauk SSSR. Mezhdovedomstvennaia komissia po izucheniiu Antarkтики. Moscow, Nauka, 1979, 215p., In Russian. Refs.  
DLC G576.A65

**Ice, Snow, Oceanography, Meteorology, Geology.**

This volume contains papers in geology, terrestrial and marine biology, oceanology, glaciology, and medicine. For individual papers, see B-22891 through B-22893, C-22882, E-22876 through F-22881, F-22883 through F-22886, H-22894, J-22887 through J-22890, and K-22875, or 34-2215 through 34-2218

34-2215

**Heat exchange between ice cover and atmosphere in East Antarctica.** (Obmen teplovoi energiei mezhdu lednikovym pokrovom i atmosferoi v Vostochnoi Antarktike).

Aver'ianov, V.G. *Antarktika: doklady komissii*, 1979, No.18, p.91-96, 7 refs., In Russian.

DLC G576.A65

**Snow air interface, Ice air interface, Ice heat loss, Glacier heat balance, Heat balance, Ice heat flux, Antarctica—Mirny Station, Antarctica—Vostok Station.**

Study of annual cycle of heat balance components at the ice cover surface, in the atmosphere above it, and at the ice-air interface are studied at Mirny and Vostok Stations. The main source of heat energy at the ice cover edge is heat from atmospheric moisture crystallization, while at the center of the ice sheet it is from heat advection from the sea. Low-frequency radiation is the primary mechanism for both surface and atmospheric heat loss in both regions

34-2216

**Snow cover metamorphism on the glacier slope near the Molodezhnaya oasis.** (Metamorfizm snezhnogo pokrova na lednikovom sklone v ratone oazisa Molodezhnogo).

Voitkovskii, K.F. *Antarktika: doklady komissii*, 1979, No.18, p.97-105, 4 refs., In Russian.

DLC G576.A65

**Snow recrystallization, Regelation, Seepage Snow compaction, Metamorphism (snow), Antarctica—Molodezhnaya Station.**

The results of observing processes of snow cover metamorphism in the Molodezhnaya area are presented. The snow cover changes into firn with ice veins during the warm season. Processes of regelative recrystallization can recur during later warm periods if the given layer is in a water infiltration zone. Mechanical densification of snow cover during accumulation facilitates more intense formation of firn granules. Smoothing of the snow surface during summer slows firmification.

34-2217

**Analysis of heat and mass exchange during thermal drilling.** (Analiz teplo-massobmena pri kolonkovom burenii skvazhin plavleniem).

Kudriashov, B.B., et al. *Antarktika: doklady komissii*, 1979, No.18, p.106-112, 6 refs., In Russian.

Salamatin, A.N., Chistiakov, V.K.

DLC G576.A65

**Mass transfer, Heat transfer, Thermal drills, Drilling.**

An analysis of heat exchange in the heating element of thermal ice coring drills during drilling is presented. The problem of temperature field of the ice mass below the working surface of the heating unit is investigated. The relationships among basic parameters of the thermal drilling process are analyzed mathematically. Results of theoretical studies were corroborated experimentally.

34-2218

**Annual and long-term variations in ice distribution in the Atlantic sector of Antarctica.** (O mezhgodovoi i mnogoletnei izmenchivosti rasprostraneniia l'da v Atlanticheskoi sektore Antarktiky).

Dobromyslov, V.N., et al. *Antarktika: doklady komissii*, 1979, No.18, p.113-117, 10 refs., In Russian.

Maslennikov, V.V.

DLC G576.A65

**Sea ice distribution, Climatic changes, South Atlantic Ocean.**

Annual and long-term fluctuations in the position of the ice edge in the Atlantic sector of the Antarctic are considered. Satellite data collected in 1971 to 1976 are used. Comparison of these data with information on ice distribution during the first

half of the 20th century indicate a significant decrease in ice cover area in 1971-1976

34-2219

**Proceedings.**

Symposium on Glacier Beds: the Ice-Rock Interface. Ottawa, Aug. 1978, *Journal of glaciology*, 1979, 23(89), p.1-445. Includes 26 full papers and a general discussion, brief progress reports on current work; abstracts of papers presented at the symposium but not published in full in this volume; abstracts of papers accepted for the symposium but not presented; a general index; and an index of authors and participants. Numerous refs. For individual papers see 34-2220 through 34-2245

**Meetings, Glacier beds, Ice solid interface.**

34-2220

**Processes of glacier erosion on different substrata.**  
Boulton, G.S., *Journal of glaciology*, 1979, 23(89), p.15-38. In English with French and German summaries. 43 refs.

**Glacial erosion, Abrasion, Glacier beds, Basal sliding, Models.**

Most theories of glacier movement and subglacial erosion have assumed that glaciers rest on rigid bedrock surfaces. While this is probably correct for much of the bed area of most modern glaciers, deformable sediments do occur beneath them and formed a substantial area of the beds of large ice sheets during glacial periods. Observations and theories are presented and reviewed about the processes of glacier erosion of rock and un lithified sediment beds both when they are frozen and unfrozen. (Auth. mod.)

34-2221

**Theoretical model of glacial abrasion.**

Hallet, B. *Journal of glaciology*, 1979, 23(89), p.39-50. In English with French and German summaries. 17 refs.

**Glacial erosion, Abrasion, Theories, Models.**

34-2222

**Simulated glacial abrasion.**

Mathews, W.H., *Journal of glaciology*, 1979, 23(89), p.51-56, 5 refs.

**Glacial erosion, Abrasion, Environment simulation.**

34-2223

**Spectral power density and shadowing function of a glacial microrelief at the decimetre scale.**

Benoist, J.P., *Journal of glaciology*, 1979, 23(89), p.57-66. In English with French and German summaries. 15 refs.

**Glacier beds, Statistical analysis, Microrelief.**

34-2224

**Local friction laws for glaciers: a critical review and new openings.**

Lliboutry, L., *Journal of glaciology*, 1979, 23(89), p.67-95. In English with French and German summaries. 31 refs.

**Glacier beds, Basal sliding, Hydraulics, Glacier friction.**

34-2225

**Unsolved general glacier sliding problem.**

Weertman, J., *Journal of glaciology*, 1979, 23(89), p.97-115. In English with French and German summaries. Refs. p.109-111

**Glacier flow, Basal sliding, Ice solid interface, Theories.**

34-2226

**Flow of ice, as a Newtonian viscous liquid, around a cylindrical obstacle near the bed of a glacier.**

Morris, E.M., *Journal of glaciology*, 1979, 23(89), p.117-129. In English with French and German summaries. 21 refs.

**Glacier flow, Analysis (mathematics).**

34-2227

**Mathematical approach to the theory of glacier sliding.**

Fowler, A.C., *Journal of glaciology*, 1979, 23(89), p.131-141. In English with French and German summaries. 20 refs.

**Glacier flow, Basal sliding, Theories, Analysis (mathematics).**

34-2228

**Simulated glacier sliding over an obstacle.**

Brepson, R., *Journal of glaciology*, 1979, 23(89), p.143-156. In English with French and German summaries. 13 refs.

**Measuring instruments, Viscosity, Glacier flow, Basal sliding.**

34-2229

**Empirical studies of ice sliding.**

Budd, W.F., et al. *Journal of glaciology*, 1979, 23(89), p.157-170. In English with French and German summaries. 27 refs.

Keage, P.L., Blundy, N.A.

**Glacier flow, Basal sliding, Surface roughness, Shear stress, Velocity measurement.**

34-2230

**Seismic evidence for discrete glacier motion at the rock-ice interface.**

Weaver, C.S., et al. *Journal of glaciology*, 1979, 23(89), p.171-184. In English with French and German summaries. 14 refs.

Malone, S.D.

**Glacier flow, Seismic surveys, Icequakes.**

34-2231

**On the origin of stratified debris in ice cores from the bottom of the Antarctic ice sheet.**

Gow, A.J., et al. *Journal of glaciology*, 1979, 23(89), p.185-192. In English with French and German summaries. 11 refs.

Epstein, S., Sheehy, W.

**Ice cores, Drill core analysis, Sedimentation, Stratification, Freeze thaw cycles.**

Cores from the bottom 4.83 m of the Antarctic ice sheet at Byrd Station contain abundant stratified debris ranging from silt sized particles to cobbles. The nature and disposition of the debris, together with measurements of the physical properties of the incoming ice, indicate that this zone of dirt-laden ice originated by "freezing-in" at the base of the ice sheet. The transition from air-rich glacial ice to ice practically devoid of air coincided precisely with the first appearance of debris in the ice at 4.83 m above the bed. Stable-isotope studies made in conjunction with gas-content measurements also confirm the idea of incorporation of basal ice may well constitute the most diagnostic test for discriminating between debris incorporated in a melt-refreeze process and debris entrapped by purely mechanical means, e.g. shearing. We conclude from our observations on bottom cores from Byrd Station that "freezing-in" of basal debris is the major mechanism by which sediment is incorporated into polar ice sheets. (Auth.)

34-2232

**Debris-laden ice at the bottom of the Greenland ice sheet.**

Herron, S., et al. *Journal of glaciology*, 1979, 23(89), p.193-207. In English with French and German summaries. Refs. p.205-207.

Langway, C.C., Jr.

**Ice cores, Ice sheets, Bottom sediment, Gas inclusions, Freeze thaw cycles.**

34-2233

**Discontinuous flow, ice texture, and dirt content in the basal layers of the Devon Island ice cap.**

Koerner, R.M., et al. *Journal of glaciology*, 1979, 23(89), p.209-222. In English with French and German summaries. 24 refs.

Fisher, D.A.

**Drill core analysis, Ice sheets, Bottom sediment, Ice structure.**

34-2234

**Depolarization of radio waves can distinguish between floating and grounded ice sheets.**

Woodruff, A.H.W., et al. *Journal of glaciology*, 1979, 23(89), p.223-232. In English with French and German summaries. 19 refs.

Doake, C.S.M.

**Floating ice, Grounded ice, Radio echo soundings.**

Polar ice is now thought to be marginally birefringent at radio echo-sounding frequencies. An experiment on the polarization behaviour of 60 MHz radio echoes from the bed of both ice shelf and land ice in Antarctica showed a marked difference in the returned polarization. It appears that differences in electrical properties or roughness of the reflecting boundary cannot explain these results. It is suggested that there is a large change in the birefringence of the ice sheet at the hinge zone, caused by the effect of tidal strain on crystal orientation. This would imply a minimum value of the radio-frequency anisotropy in permittivity for the single crystal of 0.52. Therefore polarization changes could allow floating and grounded ice to be distinguished. (Auth.)

34-2235

**Energy dissipation during subglacial abrasion at Nisqually Glacier, Washington, U.S.A.**

Metcalf, R.C., *Journal of glaciology*, 1979, 23(89), p.233-246. In English with French and German summaries. 35 refs.

**Abrasion, Subglacial drainage, Suspended sediments, Glacial erosion.**

34-2236

**Sediment concentration in melt waters as an indicator of erosion processes beneath an alpine glacier.**

Collins, D.N., *Journal of glaciology*, 1979, 23(89), p.247-257. In English with French and German summaries. 12 refs.

**Suspended sediments, Meltwater, Subglacial drainage, Glacial erosion.**



34-2237

Pressure-melting effects in basal ice of temperate glaciers: laboratory studies and field observations under Glacier d'Argentière.

Goodman, D.J., et al. *Journal of glaciology*, 1979, 23(89), p.259-271. In English with French and German summaries. 13 refs.

King, G.C.P., Millar, D.H.M., Robin, G. de Q. *Glacier ice, Ice melting, Water pressure, Subglacial observations*.

34-2238

Observations within cavities at the bed of the glacier Østerdalsisen, Norway.

Theakstone, W.H., *Journal of glaciology*, 1979, 23(89), p.273-281. In English with French and German summaries. 28 refs.

Subglacial observations, Glacier beds, Ice creep, Ice deformation.

34-2239

Sequence of glacial deformation, erosion, and deposition at the ice-rock interface during the last glaciation: Cranbrook, British Columbia, Canada.

Broster, B.E., et al. *Journal of glaciology*, 1979, 23(89), p.283-295. In English with French and German summaries. 12 refs.

Dreimanis, A., White, J.C.

Glacial geology, Glacial erosion, Glacial deposits, Plastic deformation, Ice solid interface.

34-2240

Giant grooves made by concentrated basal ice streams.

Goldthwait, R.P., *Journal of glaciology*, 1979, 23(89), p.297-307. In English with French and German summaries. 21 refs.

Glacial geology, Basal sliding, Ice scoring, United States—Ohio—Kelleys Island.

34-2241

Direct measurement of basal water pressures: progress and problems.

Hodge, S.M., *Journal of glaciology*, 1979, 23(89), p.309-319. In English with French and German summaries. 12 refs.

Subglacial observations, Water pressure, Measurement, Boreholes.

34-2242

Subglacial regelation water film.

Hallet, B., *Journal of glaciology*, 1979, 23(89), p.321-334. In English with French and German summaries. 41 refs.

Subglacial observations, Basal sliding, Water films, Regelation.

34-2243

Geometry of former subglacial water channels and cavities.

Walder, J., et al. *Journal of glaciology*, 1979, 23(89), p.335-346. In English with French and German summaries. 31 refs.

Hallet, B.

Subglacial observations, Glacier beds, Ice scoring, Glacial erosion.

34-2244

Quantitative determination of the subglacial hydrology of two alpine glaciers.

Collins, D.N., *Journal of glaciology*, 1979, 23(89), p.347-362. In English with French and German summaries. 30 refs.

Glacial hydrology, Water chemistry, Electrical resistivity.

34-2245

Subglacial constructions and investigations at Bondhusbreen, Norway.

Wold, B., et al. *Journal of glaciology*, 1979, 23(89), p.363-379. In English with French and German summaries. 8 refs.

Östrem, G.

Subglacial observations, Meltwater, Sediment transport, Tunneling (excavation).

34-2246

Scientific conference of geographers from Siberia and the Far East. Geography and practice. Proceedings. (Materialy).

Nauchnoe soveshchanie geografov Sibiri i Dal'nego Vostoka. Geografiia i praktika, 6th, Oct. 10-12, Irkutsk, 1978, Irkutsk, 1978, 253p. In Russian. For selected papers see 34-2247 through 34-2251. Refs. passim.

Medvedkova, E.A., ed.

Environmental protection, Subarctic landscapes, Taiga, Tundra, Forest tundra, Human factors, Mining, Construction, Swamps, Land reclamation, Meetings.

34-2247

Regional types of mining-affected lands in East Siberia and trends in their restoration. (Regional'nye tipy zemel', narushennykh gornymi rabotami v Vostochnoi Sibiri i obosnovanie napravlenii ikh rekul'tivatsii).

Savel'eva, I.L., et al. Nauchnoe soveshchanie geografov Sibiri i Dal'nego Vostoka. Geografiia i praktika, 6th, Oct. 10-12, Irkutsk, 1978. Materialy (Scientific conference of geographers from Siberia and the Far East. Geography and practice. Proceedings) edited by E.A. Medvedkova, Irkutsk, 1978, p.98-102. In Russian. 1 ref.

Kalep, L.L.

Land reclamation, Taiga, Mountains, Subarctic landscapes, Steppes, Human factors, Mining, Environmental protection.

34-2248

Ecologic considerations when making decisions concerning power-fuel supply systems. (Uchet ekologicheskikh faktorov pri vybere reshenii dlia ob'ektov toplivno-energeticheskogo kompleksa).

Alekseeva, G.V., et al. Nauchnoe soveshchanie geografov Sibiri i Dal'nego Vostoka. Geografiia i praktika, 6th, Oct. 10-12, Irkutsk, 1978. Materialy (Scientific conference of geographers from Siberia and the Far East. Geography and practice. Proceedings) edited by E.A. Medvedkova, Irkutsk, 1978, p.103-108. In Russian. 2 refs.

Koshelev, A.A., Stepanova, T.A.

Environmental protection, Electric power, Fuels, Fuel transport, Pipelines, Permafrost beneath structures, Permafrost control.

34-2249

Forecasting changes in West Siberian landscapes due to pipeline construction. (Prognoz izmeneniia prirodnikh kompleksov severa Zapadnoi Sibiri pod vlianiem lineinogo stroitel'stva).

Moskalenko, N.G., Nauchnoe soveshchanie geografov Sibiri i Dal'nego Vostoka. Geografiia i praktika, 6th, Oct. 10-12, Irkutsk, 1978. Materialy (Scientific conference of geographers from Siberia and the Far East. Geography and practice. Proceedings) edited by E.A. Medvedkova, Irkutsk, 1978, p.115-119. In Russian. 4 refs.

Landscape types, Taiga, Tundra, Forest tundra, Swamps, Economic development, Pipelines, Permafrost beneath structures, Environmental protection.

34-2250

Swamp land reclamation in West Siberia. (Osobennosti melioratsii bolotnykh massivov Zapadnoi Sibiri).

Sazonov, A.G., Nauchnoe soveshchanie geografov Sibiri i Dal'nego Vostoka. Geografiia i praktika, 6th, Oct. 10-12, Irkutsk, 1978. Materialy (Scientific conference of geographers from Siberia and the Far East. Geography and practice. Proceedings) edited by E.A. Medvedkova, Irkutsk, 1978, p.119-122. In Russian.

Swamps, Permafrost distribution, Land reclamation.

34-2251

Agricultural development of the Ob'-Irtysh flood plain meadows in northern Tyumen'. (Sel'skokhoziaistvennoe ispol'zovanie Ob'-Irtyshskoi lugovoi poimny na Tiimenskom Severe).

Aseeva, A.I., Nauchnoe soveshchanie geografov Sibiri i Dal'nego Vostoka. Geografiia i praktika, 6th, Oct. 10-12, Irkutsk, 1978. Materialy (Scientific conference of geographers from Siberia and the Far East. Geography and practice. Proceedings) edited by E.A. Medvedkova, Irkutsk, 1978, p.123-127. In Russian.

Cryogenic soils, Meadow soils, Vegetation.

34-2252

Soils in pine forests of Karelia. (Pochvy sosnovykh lesov Karelii).

Piavchenko, N.I., ed. Petrozavodsk, 1978, 141p. In Russian. For selected papers see 34-2253 through 34-2258.

Morozova, R.M., ed.

Cryogenic soils, Moraines, Forest soils, Podsol, Soil formation, Soil chemistry, Soil freezing, Soil water migration, Litter, Biomass.

34-2253

Soil formation on sandy deposits in Karelia. (Pochvoobrazovanie na peschanykh otlozheniiakh Karelii).

Morozova, R.M., Pochvy sosnovykh lesov Karelii (Soils in pine forests of Karelia) edited by N.I. Piavchenko and R.M. Morozova, Petrozavodsk, 1978, p.4-43. In Russian.

Moraines, Soil formation, Cryogenic soils, Forest soils, Podsol, Soil profiles, Soil chemistry, Vegetation factors, USSR—Karelia.

34-2254

Hydrothermal regime of autonomous sandy soils. (Gidrottermicheskii rezhim avtonomnykh peschanykh pochvy).

Erukov, G.V., Pochvy sosnovykh lesov Karelii (Soils in pine forests of Karelia) edited by N.I. Piavchenko and R.M. Morozova, Petrozavodsk, 1978, p.44-58. In Russian.

Soil freezing, Soil water migration, Soil temperature, Cryogenic structures, Forest soils, Podsol, Mosses, Lichens, USSR—Kola Peninsula.

34-2255

Chemical composition of natural waters and migration of chemical substances in pine forest biogeocenoses. (Khimicheskii sostav prirodnykh vod i migratsiia veshchestv v sosnovykh biogeotsenozakh).

Strelkova, A.A., Pochvy sosnovykh lesov Karelii (Soils in pine forests of Karelia) edited by N.I. Piavchenko and R.M. Morozova, Petrozavodsk, 1978, p.59-67. In Russian.

Forest soils, Litter, Podsol, Soil water migration, Water chemistry, Soil composition, Vegetation factors.

34-2256

Iron and organic matter migration in sandy podsoils. (O migratsii zheleza i organicheskogo veshchestva v peschanykh podzolistykh pochvakh).

Lazareva, I.P., Pochvy sosnovykh lesov Karelii (Soils in pine forests of Karelia) edited by N.I. Piavchenko and R.M. Morozova, Petrozavodsk, 1978, p.67-71. In Russian.

Forest soils, Litter, Cryogenic soils, Sands, Soil chemistry, USSR—Karelia.

34-2257

Seasonal variations in chemistry of sandy podsoils. (Sezonnye izmeneniia khimicheskikh svoistv podzolistykh peschanykh pochvy).

Kulikova, V.K., Pochvy sosnovykh lesov Karelii (Soils in pine forests of Karelia) edited by N.I. Piavchenko and R.M. Morozova, Petrozavodsk, 1978, p.71-84. In Russian.

Cryogenic soils, Podsol, Soil chemistry.

34-2258

Biological cycle of substances in cowberry and lichen pine forests. (Biologicheskii krugovorot veshchestv v sosniakakh brusnichnykh i lichatnikovykh).

Morozova, R.M., Pochvy sosnovykh lesov Karelii (Soils in pine forests of Karelia) edited by N.I. Piavchenko and R.M. Morozova, Petrozavodsk, 1978, p.85-112. In Russian.

Forest soils, Cryogenic soils, Soil chemistry, Vegetation, Biomass, Litter, Chemical composition.

34-2259

Proceedings.

Conference on Scientific Research in the National Parks, 1st, New Orleans, Nov. 12, 1976. Transactions and proceedings series—National Park Service, No.5, U.S. Department of the Interior, 1979, 1325p. (2 vols.), Refs. passim. For selected papers see 34-534 and 34-2260 through 34-2266.

Linn, R.M., ed.

Alpine tundra, Revegetation, Plant ecology, Glacial geology, Glacier flow, Ecosystems, Research projects.

34-2260

Ecology of alpine timberline in Olympic National Park.

Fonda, R.W., Conference on Scientific Research in the National Parks, 1st, New Orleans, Nov. 9-12, 1976. Proceedings. Edited by R.M. Linn, U.S. Department of the Interior, 1979, p.209-212, 7 refs.

Plant ecology, Forest lines, Vegetation patterns, Environments, Climatic factors, Plant physiology, Soil water.

34-2261

Primary versus secondary succession at Glacier Bay National Monument, southeastern Alaska.

Lawrence, D.B., Conference on Scientific Research in the National Parks, 1st, New Orleans, Nov. 9-12, 1976. Proceedings. Edited by R.M. Linn, U.S. Department of the Interior, 1979, p.213-224, 39 refs.

Forest ecosystems, Plant ecology, Tundra, Glacier oscillation.

34-2262

Problems of revegetation of alpine tundra.

Stevens, D.R., Conference on Scientific Research in the National Parks, 1st, New Orleans, Nov. 9-12, 1976. Proceedings. Edited by R.M. Linn, U.S. Department of the Interior, 1979, p.241-245, 21 refs.

Alpine tundra, Revegetation, Plant ecology, Ecosystems, Temperature factors, Soil water.

- 34-2263**  
Ecology of elk on alpine tundra in Rocky Mountain National Park.  
Stevens, D.R., Conference on Scientific Research in the National Parks, 1st, New Orleans, Nov. 9-12, 1976. Proceedings. Edited by R.M. Linn, U.S. Department of the Interior, 1979, p.421-426, 21 refs. Alpine tundra, Environmental impact, Animals, Ecology.
- 34-2264**  
Glacial geology of recently deglaciated bedrock areas.  
Hallet, B., Conference on Scientific Research in the National Parks, 1st, New Orleans, Nov. 9-12, 1976. Proceedings. Edited by R.M. Linn, U.S. Department of the Interior, 1979, p.795-801, 16 refs. Glacial geology, Cirque glaciers, Glacier flow, Glacier beds, Ice solid interface, Chemistry, Topographic features.
- 34-2265**  
Observations of glacier variations in Glacier Bay National Monument.  
Field, W.O., Conference on Scientific Research in the National Parks, 1st, New Orleans, Nov. 9-12, 1976. Proceedings. Edited by R.M. Linn, U.S. Department of the Interior, 1979, p.803-808, 29 refs. Glacier oscillation, Glacier flow, Glacier mass balance, Tidal glaciers, Tides.
- 34-2266**  
Alpine and subalpine vegetation under the influence of non-native mountain goats, Olympic National Park.  
Olmsted, I.C., Conference on Scientific Research in the National Parks, 1st, New Orleans, Nov. 9-12, 1976. Proceedings. Edited by R.M. Linn, U.S. Department of the Interior, 1979, p.1143-1148, 8 refs. Alpine landscapes, Vegetation, Animals, Forest lines.
- 34-2267**  
Development and test of fiberglass low-impact resistant towers.  
Pogers, E.T., et al, Mount Pleasant, Pennsylvania, Permal, Inc., 1979, 77p. ADA-077 160.  
Ross, J.A., Snyder, K.M.  
Towers, Ice loads, Wind pressure, Impact strength.
- 34-2268**  
Characteristics of subarctic snow cover.  
Fitzgibbon, J.E., et al, *Hydrological sciences bulletin*, Dec. 1979, 24(4), p.465-476. In English with French summary. 11 refs.  
Dunne, T.  
Snow cover distribution, Snowmelt, Vegetation factors.
- 34-2269**  
Synoptic climatology of the Canadian High Arctic.  
Bradley, R.S., et al, *Geografiska annaler. Series A Physical geography*, 1979, 61A(3-4), p.187-201, 25 refs.  
England, J.  
Synoptic meteorology, Climatology, Classifications, Canada.
- 34-2270**  
Ice winters 1971-75 along the Finnish coast. Jäätalvet 1971-75 suomen merialueilla, *Finnish marine research*, 1979, No.245, 63p., In Finnish and English. Statistical analysis, Sea ice, Ice conditions, Finland.
- 34-2271**  
Dependence of lake ice-covers on weather, snow and water. Sjöisars beroende av väder och vind, snö och vatten.  
Fremling, S., Sweden. *Meteorologiska och hydrologiska institutet. SMHI rapporter*, 1977, No.RHO 12, 113p., In Swedish. 25 refs.  
Lake ice, Ice cover, Meteorological factors.
- 34-2272**  
Plant reproduction in a High Arctic environment.  
Bell, K.L., et al, *Arctic and alpine research*, Feb. 1980, 12(1), p.1-10, 26 refs.  
Bliss, L.C.  
Arctic landscapes, Vegetation patterns, Plants (botany), Cold tolerance.
- 34-2273**  
Relationships between snow cover and winter losses of dissolved substances from a mountain watershed.  
Lewis, W.M., Jr., et al, *Arctic and alpine research*, Feb. 1980, 12(1), p.11-17, 10 refs.  
Grant, M.C.  
Snow hydrology, Snow composition, Minerals, Nutrient cycle, Watersheds.
- 34-2274**  
Palsas and other permafrost features in the lower Rock Creek Valley, west-central Alberta.  
Brown, G., *Arctic and alpine research*, Feb. 1980, 12(1), p.31-40, 29 refs.  
Frost mounds, Permafrost distribution, Meteorological factors.
- 34-2275**  
Problem of lichen-free zones in Arctic Canada.  
Koerner, R.M., *Arctic and alpine research*, Feb. 1980, 12(1), p.87-94, 24 refs.  
Lichens, Snow cover effect.
- 34-2276**  
Description of a thrust of sea ice.  
Hanson, A., *Arctic and alpine research*, Feb. 1980, 12(1), p.101-104, 6 refs.  
Sea ice, Pressure ridges.
- 34-2277**  
Air cushion vehicle (ACV) icebreaker test and evaluation program. Volume I. Executive summary.  
Buck, J., et al, *U.S. Coast Guard Research and Development Center. Report*, July 1978, CGR/DC-12-78, 39p. ADA-077 291.  
Pritchett, C.W.  
Icebreakers, Air cushion vehicles, Cold weather performance, River ice, Low temperature tests.
- 34-2278**  
Air cushion vehicle (ACV) icebreaker test and evaluation program. Volume 2. Operational and engineering analysis.  
Buck, J., et al, *U.S. Coast Guard Research and Development Center. Report*, Aug. 1978, CGR/DC-13-78, 156p. ADA-077 449.  
Dennis, B., Anthony, J., Neal, E.  
Air cushion vehicles, Icebreakers, Cold weather performance, Low temperature tests, River ice.
- 34-2279**  
Statistical analysis of terrain and water (ice) backgrounds in a winter scene from northern Michigan.  
LaRocca, A.J., *Environmental Research Institute of Michigan. Infrared and Optics Division. Report*, Oct. 1979, ERIM-139900-2-F, 302p. ADA-077 554.  
Statistical analysis, Terrain identification, Infrared photography, Ice cover.
- 34-2280**  
Aircraft icing during low-level flights.  
Rapp, R.R., *Rand Corporation. Report*, Nov. 1979, RAND N-1311-AF, 18p. ADA-078 843.  
Aircraft icing.
- 34-2281**  
Degradation of oil by yeast and filamentous fungi in Arctic environments.  
Crow, S.A., et al, Atlanta, Georgia State University, 1979, 13p. ADA-078 892.  
Ahearn, D.G.  
Fungi, Oil spills, Degradation, Polar regions.
- 34-2282**  
Battery for Arctic radio repeater systems.  
Armstrong, W.A., et al, Canada. *Defence Research Establishment, Ottawa. DREO technical note*, Nov. 1979, DREO-TN-79-27, 26p., ADA-079 585, In English with French summary.  
Barnes, W.D.  
Electric power, Radio communication, Cold weather operation, Electric equipment.
- 34-2283**  
Suppression of river ice by thermal effluents.  
Ashton, G.D., *U.S. Army Cold Regions Research and Engineering Laboratory*, Dec. 1979, CR 79-30, 23p., ADA-080 654, 5 refs.  
River ice, Ice control, Thermal diffusion, Thermal pollution, Heat transfer.  
The ice suppression resulting from discharge of warm water into rivers during winter is analyzed with emphasis on two different cases. In Part 1, the case of a thermal effluent fully mixed across the flow section is analyzed to include the effects of unsteadiness in the effluent temperature and the meteorological variations. The location of the ice edge is determined either by O C water temperature criterion or an equilibrium ice melting analysis. The choice of the applicable criterion emerges naturally from the analysis, even though the location of the ice edge may be considerably different when a steady-state analysis is done. In Part 2, the case of a side discharge of heated effluent is analyzed, also in an unsteady manner, and the effects of transverse dispersion are included in the analysis. Comparisons are made in Parts 1 and 2 to limited field data that are available.
- 34-2284**  
Mass water balance during spray irrigation with wastewater at Deer Creek Lake land treatment site.  
Abele, G., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, Aug. 1979, SR 79-29, 43p., ADA-080 649, 3 refs.  
McKim, H.L., Brockett, B.E.  
Water treatment, Waste treatment, Water balance, Sewage treatment, Irrigation.  
The water budget for a 36-ha test area was calculated during and two days after a 2.7-cm (equivalent to 993,000 l) application of wastewater. By computing the water remaining in the soil from soil sample water content data, calculating the amount lost to evapotranspiration and measuring the underdrain flow rate, it was possible to calculate the water budget to within 95% of the actual amount applied. The accuracy in computing the soil water content is critical. In this case, a 1% variation of error in the volumetric water content is equivalent to nearly one third of the total water applied.
- 34-2285**  
Proceedings of the Seminar III on Dry Valley Drilling Project, 1978.  
Nagata, T., and Tokyo. *National Institute of Polar Research. Memoirs*, Sep. 1979, Special issue No.13, 245p., Refs. For selected papers see E-22899, E-22900, E-22902 through 22922 and L-22901, or 34-2286 through 34-2289.  
Research projects, Glacial geology, Drill core analysis, Ice composition, Snow composition, Permafrost structure.  
The third seminar on the multi-national (United States-Japan-New Zealand) Dry Valley Drilling Project (DVP) was held in Tokyo from June 5 to 10, 1978. The participants included twenty representatives from the U.S., five from New Zealand, two from Australia, twenty from Japan, and an audience of about twenty people. The seminar provided the opportunity to discuss scientific topics, problems concerning cooperative work, and future programs. Fifty papers were presented at eight sessions. The present volume contains 26 papers and abstracts.
- 34-2286**  
View on the formation of saline waters in the Dry Valleys.  
Tomi, T., et al, Tokyo. *National Institute of Polar Research. Memoirs*, Sep. 1979, Special issue No.13, Proceedings of the Seminar III on Dry Valley Drilling Project, 1978, edited by T. Nagata, p.22-33, 13 refs.  
For another version of this paper see 10F-20374, or 32-4377.  
Yamagata, N., Ohsaka, J., Murata, S.  
Water chemistry, Salt water, Drill core analysis, Ice composition, Snow composition.  
A previous report by Tomi et al (1977, 9E-18530) on the salt balance in the Don Juan basin pointed out the presence of calcium excess when the total salt deposits in the basin are assumed to have resulted simply from the evaporation of sea water. Concerning the evolutionary processes of saline waters in the Dry Valleys, sources of the salts other than trapped sea water were not necessarily excluded, and sea spray, ion exchange and rock weathering theories have been suggested by many investigators. This paper presents the results obtained by further examination of the processes of saline water formation, on the basis of the analytical results of the DVP cores from the Wright Valley, the information on the chemical characteristics of the water systems in the Dry Valleys, and a recent reconnaissance in the Labyrinth and the Pearce Valley. It is more likely that the chemical composition of waters in these saline lakes is mainly due to the atmospheric salt rather than the modification of trapped sea salt. (Auth.)
- 34-2287**  
Upper crustal structure under McMurdo Station, Antarctica, deduced from blasts during nuclear power plant removal.  
Kaminuma, K., Tokyo. *National Institute of Polar Research. Memoirs*, Sep. 1979, Special issue No.13, Proceedings of the Seminar III on Dry Valley Drilling Project, 1978, edited by T. Nagata, p.34-41, 9 refs.  
Glacial geology, Seismic waves, Blasting, Antarctica—McMurdo Station.  
The upper crustal structures beneath McMurdo Station are studied, using reflected waves of blasts for dismantling the nuclear power plant in Nov. and Dec. of 1975. A three-seismograph network was installed near the Thiel Earth Sciences Laboratory, and reflected waves of four blasts out of many were successfully observed. As the distances between the blast points and seismographs were only 300 m, refracted waves were not recorded. Though the velocities of seismic waves are not determined, the arrival times of clear phases of reflected waves are detected with high accuracy. The shortest travel time of reflected waves is approx 0.7 sec, and thickness of the first layer is 1.2 km if the P wave velocity of the layer is assumed to be 3.1 km/s. The travel time of all the well-identified latest phase is 3.95 sec. This study suggests the presence of five layers in the upper crust. (Auth.)

34-2288

**Chemistry and clay mineralogy of cores 8, 9, 10, New Harbor, Antarctica.**Ugolini, F.C., et al. *Tokyo. National Institute of Polar Research. Memoirs*, Sep. 1979, Special issue No.13, Proceedings of the Seminar III on Dry Valley Drilling Project, 1978, edited by T. Nagata, p.84-102, Refs. p.99-102.

Deutsch, W., Harris, H.J.H.

**Permafrost structure, Electrical resistivity, Ion density (concentration), Soil chemistry, Clay minerals.**

Electrical conductivity and ionic composition of extracted solutions from ice-cemented permafrost from cores 8, 9, and 10 show that most of the sediments were deposited in a marine environment and that aggradation of permafrost during exposure of the sediments to subaerial conditions caused ionic concentration. Influx of brines capable of moving in permafrost is also suggested. Regions of low conductivity are interpreted either as freshwater episodes or textural discontinuities. Clay mineralogy can be separated into three major assemblages corresponding to the three major lithological units. The clay minerals show little weathering and complex irregular interstratification of mica-vermiculite-montmorillonite and chlorite. (Auth.)

34-2289

**DVDP at the Florida State University: core storage and sample distribution.**Cassidy, D.S., *Tokyo. National Institute of Polar Research. Memoirs*, Sep. 1979, Special issue No.13, Proceedings of the Seminar III on Dry Valley Drilling Project, 1978, edited by T. Nagata, p.240-245, 13 refs. **Cores, Dry Valley Drilling Project.**

Cores recovered by the Japan-New Zealand-United States Dry Valley Drilling Project (DVDP) in Antarctica are stored at the Florida State University's Antarctic Research Facility. More than 1100 m of DVDP drill core are stored at -23C, from which 3471 samples have been distributed to authorized investigators worldwide. All cores remain in excellent condition, and further research interest in them is invited. (Auth.)

34-2290

**Microbiological studies of the central antarctic ice sheet.** (Mikrobiologicheskie issledovaniia lednikovoi tolshchi tsentral'noi Antarktikii).Abyzov, S.S., et al. *Akademiia nauk SSSR. Izvestiia. Seriya biologicheskaya*, 1979, No.6, p.828-836, In Russian with English summary. 26 refs.

Bobin, N.E., Kudriashov, B.B.

**Microbiology, Cryobiology, Algae, Fungi, Ice sheets, Glacier ice, Antarctica—Vostok Station.**

The ice sheet of Antarctica provides a unique opportunity to study the conservation of microorganisms under strong cooling for tens or, possibly, hundreds of years. Microbiological investigations of thickness of the glacier up to 312 meters have been carried out for the first time in Central Antarctic. It was established that the microorganism concentration in deep layers of the glacier was extremely small with fortuitous distribution along the glacier profile. The age of studied horizons with embedded viable microorganisms is 10-13 thousand years. Among the microorganisms found, the dominant ones are classified as bacteria. Microscopic fungi and yeasts were found as well. (Auth.)

34-2291

**Regionalization of Poland's coast in terms of ice ridges piled on beaches.** (Rejonizacja polskiej strefy przybrzeżnej pod względem powstawania spiętrzeń lodowych).Zakrzewski, W., *Czasopismo geograficzne*, 1978, 49(1), p.3-16, In Polish with English summary. 18 refs.**Shores, Ice override, Drift, Floating ice, Baltic Sea.**

34-2292

**Safe working conditions on fast ice.** (Bezopasnost' rabot na ledovom priptae).Chuchukin, A., *Morskoi flot*, 1979, No.4, p.26-27, In Russian.**Ice wharves, Cargo, Safety, Logistics.**

Precautions to be taken before and during unloading of cargo on an ice shelf are discussed. Two broad concerns face planners: avoidance of breakup of the ice itself, and preventing the ship from being entrapped.

34-2293

**Recent relief-forming processes in Siberia.** (Protsessy sovremennogo rel'efobrazovaniia v Sibiri).

Ivanovskii, L.N., ed. Irkutsk, 1978, 139p., In Russian. For selected papers see 34-2294 through 34-2298. Refs. passim.

**Geocryology, Soil freezing, Frost penetration, Frost heave, Soil water migration, Pingos, Ice lenses, Slope processes, Alpine landscapes, Solifluction, Avalanches, Rock streams, Permafrost distribution, Snow cover distribution, Forest lines, USSR—Transbaikalia.**

34-2294

**Recent exogenic relief-forming processes in Transbaikalian steppes.** (Izuchenie sovremennykh ekzogennykh protsessov rel'efobrazovaniia v stepnom Zabaikal'e).Titova, Z.A., et al. *Protsessy sovremennogo rel'efobrazovaniia v Sibiri* (Recent relief-forming processes in Siberia) edited by L.N. Ivanovskii, Irkutsk, 1978, p.3-21, In Russian. 5 refs.

Bazhenova, O.I.

**Steppes, Soil freezing, Frost penetration, Snow cover effect, Snow surveys, Charts.**

34-2295

**Bald peaks in the Lake Baykal area and northern Transbaikalia, their boundaries and distribution.** (Gol'tsy Pribaikal'ia i severnogo Zabaikal'ia, ikh granitsy i rasprostraneniie).Vyrkin, V.B., *Protsessy sovremennogo rel'efobrazovaniia v Sibiri* (Recent relief-forming processes in Siberia) edited by L.N. Ivanovskii, Irkutsk, 1978, p.63-68, In Russian. 12 refs.**Alpine landscapes, Snow cover distribution, Glaciation, Forest lines, Rock streams, Bald peaks.**

34-2296

**Slope denudation in the bald peak zone of western Sayan.** (Denudatsiia sklonov v gol'tsovom poiae Zapadnogo Saiana).Rashba, I.N., *Protsessy sovremennogo rel'efobrazovaniia v Sibiri* (Recent relief-forming processes in Siberia) edited by L.N. Ivanovskii, Irkutsk, 1978, p.69-87, In Russian. 21 refs.**Alpine landscapes, Slope processes, Rock streams, Permafrost distribution, Frost weathering, Talus, Creep, Solifluction, Bald peaks.**

34-2297

**Rock streams and bald peak zones of the Lake Baykal area and northern Transbaikalia.** (Kurumy gol'tsov Pribaikal'ia i severnogo Zabaikal'ia).Vyrkin, V.B., *Protsessy sovremennogo rel'efobrazovaniia v Sibiri* (Recent relief-forming processes in Siberia) edited by L.N. Ivanovskii, Irkutsk, 1978, p.88-108, In Russian. 35 refs.**Alpine landscapes, Rock streams, Slope processes, Solifluction.**

34-2298

**Frost heave in Transbaikalian steppes.** (Puchenie grunta v stepnom Zabaikal'e).Bazhenova, O.I., *Protsessy sovremennogo rel'efobrazovaniia v Sibiri* (Recent relief-forming processes in Siberia) edited by L.N. Ivanovskii, Irkutsk, 1978, p.109-126, In Russian. 27 refs.**Geocryology, Soil freezing, Frost penetration, Frost heave, Soil water migration, Pingos, Ground ice, Ice lenses, Thermokarst, USSR—Transbaikalia.**

34-2299

**International conference on meteorology of the Carpathian Mountains. Proceedings.**

Mezhdunarodnaia konferentsiia po meteorologii Karpat, 7th, Tatranska Lomnica, Sep. 21-25, 1975, Bratislava, VEDA, 1979, 415p., In Russian, French and German. For selected papers see 34-2300 through 34-2305. Refs. passim.

Otruba, J., ed.

**Hoarfrost, Measuring instruments, Synoptic meteorology, Snowfall, Precipitation gages, Snow cover distribution, Snow depth, Snow water equivalent, Icing, Meteorological data, Carpathian Mountains.**

34-2300

**Hydrologic effectiveness of continuous snow cover in the Moravian-Silesian Beskids.** (Gidrologicheskaya effektivnost' sploshnogo snezhnogo pokrova v Moravsko-Silezskikh Beskidakh).Lednický, V., et al. *Mezhdunarodnaia konferentsiia po meteorologii Karpat*, 7th, Tatranska Lomnica, Sep. 21-25, 1975 (International conference on meteorology of Carpathian Mountains, Sep. 21-25, 1975, Proceedings) edited by J. Otruba, Bratislava, VEDA, 1979, p.261-268, In Russian with French and German summaries. 7 refs.

Konicar, J.

**Snow cover distribution, Snow water equivalent, Czechoslovakia—Beskids.**

34-2301

**Relationship between annual snow water content maxima and elevation in medium high mountains in the German Democratic Republic.** (Die Seehöhenabhängigkeit der jährlichen Höchstwerte des Wassergehalts der Schneedecke im Mittelgebirge der DDR).Zerche, M., *Mezhdunarodnaia konferentsiia po meteorologii Karpat*, 7th, Tatranska Lomnica, Sep. 21-25, 1975 (International conference on meteorology of Carpathian Mountains, Sep. 21-25, 1975, Proceedings) edited by J. Otruba, Bratislava, VEDA, 1979, p.269-273, In German with Russian and French summaries.**Snow cover distribution, Snow depth, Snow water content.**

34-2302

**Improving snow gage accuracy.** (Verbesserung der Schneeniederschlagsmessung).Pleiss, H., *Mezhdunarodnaia konferentsiia po meteorologii Karpat*, 7th, Tatranska Lomnica, Sep. 21-25, 1975 (International conference on meteorology of Carpathian Mountains, Sep. 21-25, 1975, Proceedings) edited by J. Otruba, Bratislava, VEDA, 1979, p.275-283, In German with Russian and French summaries. 5 refs.**Precipitation gages, Snowfall.**

34-2303

**Seasonal variations in the relationship between the number of days with snow cover and elevation in high mountains.** (Der Jahresgang der Höhenabhängigkeit der Zahl der Tage mit Schneedecke im Hochgebirge).Steinhauser, F., *Mezhdunarodnaia konferentsiia po meteorologii Karpat*, 7th, Tatranska Lomnica, Sep. 21-25, 1975 (International conference on meteorology of Carpathian Mountains, Sep. 21-25, 1975, Proceedings) edited by J. Otruba, Bratislava, VEDA, 1979, p.313-322, In German with Russian summary.**Mountains, Snow cover, Meteorological data.**

34-2304

**Climatic-synoptic characteristics of days with snowfall and snow cover in Eastern Serbia.** (Klimato-sinopticheskie kharakteristiki dnei so snegom i snezhnym pokrovom v Vostochnoi Serbii).Ranković, S., et al. *Mezhdunarodnaia konferentsiia po meteorologii Karpat*, 7th, Tatranska Lomnica, Sep. 21-25, 1975 (International conference on meteorology of Carpathian Mountains, Sep. 21-25, 1975, Proceedings) edited by J. Otruba, Bratislava, VEDA, 1979, p.335-345, In Russian with French summary. 5 refs.

Sokolović-Ilić, G.

**Synoptic meteorology, Snow cover, Snowfall.**

34-2305

**Hoarfrost-ice deposits in West Carpathian Uplands.** (Nekotorye kharakteristiki goledno-izmorozovykh otlozhenii v vysokogornykh oblastiakh Zapadnykh Karpat).Ostrožlík, M., *Mezhdunarodnaia konferentsiia po meteorologii Karpat*, 7th, Tatranska Lomnica, Sep. 21-25, 1975 (International conference on meteorology of Carpathian Mountains, Sep. 21-25, 1975, Proceedings) edited by J. Otruba, Bratislava, VEDA, 1979, p.363-371, In Russian with French and German summaries. 8 refs.**Hoarfrost, Icing, Measuring instruments, Meteorological factors, Czechoslovakia—Tatra Mountains.**

34-2306

**Biogeocenologic studies in planted meadows of East-European tundra.** (Biogeotsenologicheskie issledovaniia na seiannykh lugakh v vostochnoevropeiskoi tundre).

Archevova, I.B., ed. Leningrad, Nauka, 1979, 190p., In Russian with English table of contents enclosed. Refs. p.179-189.

Kotelina, N.S., ed.

**Tundra, Meadow soils, Cryogenic soils, Vegetation, Soil chemistry, Nutrient cycle.**

34-2307

**Control of blasting effects on rocks and grounds.** (Upravlenie del'stviiem vzryva v gruntakh i gornykh porodakh).

Vovk, A.A., ed. Kiev, Naukova dumka, 1979, 224p., In Russian. For selected papers see 34-2308 through 34-2311. Refs. passim.

Luchko, I.A., ed.

**Mining, Artificial freezing, Blasting, Land reclamation, Seasonal freeze thaw, Drainage, Frozen ground, Channels (waterways), Cold weather construction.**

## 34-2308

**Reversible and irreversible changes in strength of grounds compacted by blasting.** (Obratimye i neobratimye izmeneniya prochnostnykh pokazateley uplotnennykh vzryvom gruntov).

Chernyi, G. I., Upravlenie deistviem vzryva v gruntakh i gornyykh porodakh (Control of blasting effects on rocks and grounds) edited by A. A. Vovk and I. A. Luchko, Kiev, Naukova dumka, 1979, p.41-52, In Russian. 3 refs.

**Soil compaction, Blasting, Slope stability.**

## 34-2309

**Studying physical and mechanical properties of seasonally frozen grounds subject to blasting, for the construction of land reclamation objects.** (Issledovanie fiziko-mekhanicheskikh svoystv sezonnomerzlykh gruntov pri stroitel'stve gidromeliorativnykh ob'ektov vzryvom).

Vorob'ev, V. D., et al., Upravlenie deistviem vzryva v gruntakh i gornyykh porodakh (Control of blasting effects on rocks and grounds) edited by A. A. Vovk and I. A. Luchko, Kiev, Naukova dumka, 1979, p.132-138, In Russian. 2 refs.

**Land reclamation, Swamps, Drainage, Channels (waterways), Blasting, Peat.**

## 34-2310

**Effectiveness of slotted blasting charges used in building channels in seasonally frozen grounds.** (Effektivnost' primeneniya shechelevykh zaryadov pri stroitel'stve kanalov v sezonnomerzlykh gruntakh).

Frash, G. B., et al., Upravlenie deistviem vzryva v gruntakh i gornyykh porodakh (Control of blasting effects on rocks and grounds) edited by A. A. Vovk and I. A. Luchko, Kiev, Naukova dumka, 1979, p.138-142, In Russian. 5 refs.

**Land reclamation, Drainage, Channels (waterways), Cold weather construction, Frozen ground, Blasting.**

## 34-2311

**Stress waves in artificially frozen water-saturated ground, studied after fuse detonation on test-benches and in mining shafts.** (Issledovanie voln napriazhenii v zamorozhennykh vodonasyshchennykh gruntakh ot vzryva shnurovykh zaryadov na polupromyshlennom stende i v stvolakh).

Oksanich, I. F., et al., Upravlenie deistviem vzryva v gruntakh i gornyykh porodakh (Control of blasting effects on rocks and grounds) edited by A. A. Vovk and I. A. Luchko, Kiev, Naukova dumka, 1979, p.142-148, In Russian. 2 refs.

Mironov, P. S., Chmykhalov, V. S., Fesenko, O. G. **Mining, Blasting, Frozen ground, Artificial freezing, Stresses.**

## 34-2312

**Secrets of natural ice in Kazakhstan.** (Tainy prirodnykh ledov Kazakhstanay).

Tokmagambetov, G. A., Alma-Ata, Nauka, 1978, 151p., In Russian with English table of contents enclosed. 11 refs.

**Glaciology, Geocryology, Glacial hydrology, Snowfall, Avalanches, Mudflows, Permafrost distribution, USSR—Kazakhstan.**

## 34-2313

**Problems raised by frost action. Fundamental and applied researches (rocks and artificial building materials).** Vol.2: scientific reports. (Les problèmes posés par la gélification. Recherches fondamentales et appliquées (roches et matériaux artificiels de construction). Vol.2: rapports scientifiques).

International Congress of the Foundation Française d'Etudes Nordiques, 6th, Le Havre, April 23-25, 1975. *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, 527p., In French and English with English and French summaries. Refs. passim. For selected papers see 34-2314 through 34-2351. For Vol.1 see 32-2950.

Aguirre-Puente, J., ed. **Frost action, Freeze thaw cycles, Frost resistance, Frozen rocks, Rock mechanics, Construction materials, Saturation, Porosity, Low temperature tests.**

## 34-2314

**Structural steels usable at low temperature.** (Les aciers de construction métallique utilisables aux basses températures).

Murray, G. *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.7-17, In French. **Low temperature tests, Steels, Fracturing, Elastic properties, Temperature effects, Construction materials.**

## 34-2315

**Frost shattering observed on cracks at the surface of Gilman Glacier, Ellesmere Island.** (Observations sur la gélification par fissures à la surface du glacier Gilman (Ile d'Ellesmere)).

Brochu, M., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.55-59, In French. **Frost shattering, Ice cracks, Glacier surfaces.**

## 34-2316

**Application of factor analysis to the study of patterned ground in polar environments.** (Essai d'application de l'analyse factorielle des correspondances à l'étude des sols structurés en milieu polaire).

Brossard, L., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.61-71, In French with English summary. 2 refs.

**Patterned ground, Frost action, Slope orientation, Polar regions, Topographic features, Vegetation factors, Classifications.**

## 34-2317

**Some observations about rock weathering by frost upon the wall carvings.**

Fukuda, M., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.73-79, In French with French summary. 8 refs.

**Frost weathering, Rock properties, Freeze thaw tests, Frost action, Porosity, Moisture, Physical properties, Frozen rocks.**

## 34-2318

**Detection of frost shattering in high mountains by means of photography in the blue and near ultraviolet spectra.** (Détection de la gélification en haute montagne au moyen de la photographie dans le spectre du bleu et du proche ultra-violet).

Galibert, G., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.81-92, In French with English summary. 2 refs.

**Frost shattering, Slope orientation, Mountains, Photographic techniques, Spectroscopy.**

## 34-2319

**Influence of cryogenic processes on clay minerals.** Konishchev, V. N., et al., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.93-101, In English with French summary. 11 refs.

Rogov, V. V., Shekurina, G. N. **Geocryology, Clay minerals, Freeze thaw cycles, Microstructure, Periglacial processes, Moisture, Infra-red spectroscopy.**

## 34-2320

**Experimental studies of frost shattering at the Center for Geomorphology of the French National Center for Scientific Research.** (Les recherches de gélification expérimentale du Centre de Géomorphologie du C.N.R.S.).

Lautridou, J. P., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.103-110, In French with English summary. 10 refs.

**Frost shattering, Rock mechanics, Frost action, Frost weathering, Porosity, Tests.**

## 34-2321

**Superimposed rockfalls and climatic changes in northwestern Greenland.** (Eboulements superposés et changements climatiques dans le nord-ouest du Groenland).

Malaurie, J., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.117-128, In French with English summary. 18 refs.

**Rock mechanics, Frost action, Freeze thaw cycles, Erosion, Climatic changes, Geomorphology, Stratification, Paleoclimatology.**

## 34-2322

**Correlation of rock weathering parameters.** Hudec, P. P., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.147-156, 25 refs.

**Frost weathering, Frozen rocks, Rock mechanics, Freeze thaw cycles, Porosity, Moisture.**

## 34-2323

**Freeze-thaw tests and theories of frost action.** (Les essais cycliques de gel et dégel et les théories de la gélification).

Blachère, J. R., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.161-180, In French with English summary. 10 refs.

**Freeze thaw tests, Frost action, Clays, Construction materials, Porosity, Ice pressure, Temperature effects, Theories.**

## 34-2324

**Studies of the destruction mechanism at freezing of porous materials.**

Fagerlund, G., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.167-196, In English with French summary. 18 refs.

**Frost action, Porous materials, Freezing, Frost resistance, Saturation, Damage, Construction materials, Salinity, Analysis (mathematics).**

## 34-2325

**Relation between the frost resistance and the mechanical and porometric characteristics of a terra cotta fragment.** (Relation entre la tenue au gel d'un tessou de terre cuite et ses caractéristiques mécaniques et porométriques).

Fontaine, L., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.197-211, In French with English summary. 8 refs.

**Frost resistance, Ceramics, Porosity, Mechanical properties, Analysis (mathematics).**

## 34-2326

**Methods of testing frost resistance of concretes.** (Méthodes d'essai pour la gelivité des bétons).

Houhou, A., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.213-224, In French with English summary. 2 refs.

**Frost resistance, Concrete strength, Freeze thaw cycles, Frost action, Saturation, Tests.**

## 34-2327

**Methods of testing frost resistance of stone.** (Méthodes d'essais au gel des pierres).

Mamillan, M., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.225-238, In French with English summary. 3 refs.

**Frost resistance, Rocks, Porosity, Saturation, Freeze thaw cycles, Masonry, Climatic factors, Tests, Frozen rocks.**

## 34-2328

**Experimental studies of frost shattering of ceramic tiles.** (Recherches expérimentales sur la gélification des tuiles en céramique).

Muresan, M., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.239-249, In French with English summary. 26 refs.

**Frost shattering, Ceramics, Frost resistance, Freeze thaw tests.**

## 34-2329

**What do we know about freezing of concrete.** (Que savons-nous du gel du béton?).

Venuat, M., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.251-260, In French with English summary.

**Freeze thaw cycles, Concrete strength, Concrete structures, Damage, Saturation, Mortars.**

## 34-2330

**Model of freezing in porous media applied to an actual case.** (Modèle destiné à la simulation du gel dans les milieux poreux. Application en cas réel).

Adier-Vignes, M., et al., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.263-269, In French with English summary. 3 refs.

**Dijkema, K. M. Porous materials, Freezing, Ice water interface, Models, Capillary ice.**

## 34-2331

**Physical mechanism of freezing in rocks.** (Contribution à l'étude du mécanisme physique du gel des roches).

Aguirre-Puente, J., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.271-284, In French with English summary. 10 refs.

**Frozen rocks, Physical properties, Freeze thaw cycles, Damage, Freezing, Rocks.**

## 34-2332

**Ice growth at a porous plate and at a single capillarity.**

Biermans, M., et al., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.285-293, In English with French summary. 5 refs.

**Dijkema, K. M. Ice crystal growth, Porous materials, Ice water interface, Temperature effects, Capillary ice, Ultrasonic tests.**

## 34-2333

**Freezing of water in porous materials.** (Le gel de l'eau dans les matériaux poreux).

Blachère, J. R., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.295-303, In French with English summary. 13 refs.

**Freezing, Porous materials, Frost action, Saturation, Freeze thaw tests, Damage, Thermodynamics.**



- 34-2334**  
Exact solution for freezing of humid porous half-space.  
Mikhailov, M.D., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.305-313, In French with English summary. 5 refs.  
Freezing, Porous materials, Moisture, Heat transfer, Stefan problem, Temperature effects, Analysis (mathematics).
- 34-2335**  
Frost shattering of wet rock. (Gélifraction des roches humides).  
Bertouille, H., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.315-328, In French with English summary. 4 refs.  
Frost shattering, Rock mechanics, Frozen rocks, Saturation, Porosity, Fracturing, Analysis (mathematics).
- 34-2336**  
Experimental and numerical simulation of the thermal behavior of a road structure subjected to a freeze-thaw cycle. (Comportement thermique d'une structure routière soumise à un cycle de gel-dégel. Simulations expérimentale et numérique).  
Canard, L., et al., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.329-342, In French with English summary. 12 refs.  
Dupas, A., Frémond, M., Levy, M.  
Pavement bases, Freeze thaw cycles, Thermal conductivity, Analysis (mathematics), Experimentation, Computer applications.
- 34-2337**  
Study of freezing mechanisms in Caen rock. (Etude des mécanismes du gel dans la Pierre de Caen).  
Lauridou, J.P., et al., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.343-358, In French with English summary. 6 refs.  
Mazo, L., Ozouf, J.C., Benoist, J.P.  
Frozen rocks, Freezing, Moisture, Water table, Temperature effects.
- 34-2338**  
Use of ultrasonic waves to monitor the propagation of the freezing front in carbonaceous rocks. (Utilisation des ondes ultrasonores pour le suivi de la propagation du front de gel dans les roches carbonatées).  
Masson, M., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.359-365, In French. 8 refs.  
Frozen rocks, Freezing, Porosity, Fracturing, Ultrasonic tests.
- 34-2339**  
Proposed size classification for the texture of frozen earth materials.  
McGaw, R.W., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.267-275, In English with French summary. 4 refs.  
Frozen ground physics, Soil freezing, Freezing rate, Ice lenses, Frost heave, Soil water migration, Heat transfer, Porosity, Classifications.
- 34-2340**  
Influence of normal fluxes on convective transfer at an interface. (Influence de flux normaux sur le mouvement convectif d'interface).  
Prud'homme, R., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.377-392, In French with English summary. 8 refs.  
Rocks, Fracture zones, Convection, Interfaces, Gravity, Thermal effects, Mathematical models.
- 34-2341**  
Discussion about the freezing point depression in small pores.  
Haynes, J.M., et al., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.393-397, 4 refs.  
Wyatt, D.A.  
Freezing points, Capillary ice, Thermodynamics, Ice water interface, Porous materials, Freeze thaw cycles, Phase transformations.
- 34-2342**  
Wind action in frost shattering processes. (L'action du vent dans les processus de gélifraction).  
Brochu, M., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.401-404, In French. 2 refs.  
Frost shattering, Wind factors, Saturation, Temperature effects, Humidity.
- 34-2343**  
Thermal conductivity of soils and rocks.  
Johansen, O., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.407-420, In English with French summary. 19 refs.  
Thermal conductivity, Frost action, Soil water, Rocks, Thermal regime, Heat transfer, Saturation, Vapor diffusion.
- 34-2344**  
Practical trials of insulants made from plastics for frost-protection in road and railroad construction: comparison of theory and practice.  
Apostolopoulos, C., et al., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.421-437.  
Schneider, W.  
Thermal insulation, Frost protection, Cellular plastics, Pavements, Roads, Railroads, Frost resistance, Construction, Design criteria.
- 34-2345**  
Heating of moist bodies.  
Srivastava, K.K., et al., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.439-445, 1 ref.  
Pandey, R.N.  
Heating, Heat transfer, Moisture, Temperature distribution, Drying, Analysis (mathematics).
- 34-2346**  
Integral balance approach for determination of heat transfer potential in porous bodies under different types of boundary conditions.  
Srivastava, K.K., et al., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.447-457, 3 refs.  
Pandey, R.N.  
Heat transfer, Porous materials, Boundary layer, Phase transformations, Analysis (mathematics).
- 34-2347**  
Heating of solid of simple geometry when the surrounding temperature is a harmonic function of time.  
Srivastava, K.K., et al., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.459-466, 1 ref.  
Pandey, R.N.  
Heat transfer, Thermal conductivity, Temperature distribution, Solids, Time factor, Analysis (mathematics).
- 34-2348**  
Numerical simulation of a horizontal porous layer heated from below. (Simulation numérique d'une couche poreuse horizontale chauffée par le dessous).  
Caltagirone, J.P., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.467-479, In French with English summary. 14 refs.  
Heating, Porous materials, Convection, Thermal conductivity, Temperature variations, Isotherms, Analysis (mathematics).
- 34-2349**  
Thermal regime in road constructions; measurements and simulation.  
Frivik, P.E., et al., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.482-496, In English with French summary. 7 refs.  
Pedersen, J.M.  
Thermal regime, Road icing, Construction, Freezing, Frost protection, Climatic factors, Surface temperature, Air temperature, Analysis (mathematics), Tests, Temperature measurement.
- 34-2350**  
Thermal climate regime on road and ground surface.  
Heiersted, R.S., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.497-509, In English with French summary. 5 refs.  
Thermal regime, Freezing indexes, Frost penetration, Pavements, Surface temperature, Air temperature, Roads, Climatic factors, Frost action, Thermal radiation, Snow depth, Seasonal variations.
- 34-2351**  
Heat pipes as applied to thermal control of frozen ground.  
Vasil'ev, L.L., et al., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.51-520, 3 refs.  
Konev, S.V.  
Permafrost control, Frozen ground temperature, Heat pipes, Permafrost beneath structures, Low temperature tests.
- 34-2352**  
Radiative cooling of layers of pebble. (Refroidissement par rayonnement des couches de cailloux).  
Bernard, J.J., *Fondation française d'études nordiques. Actes et documents*, 1979, No.6, p.521-524, In French.  
Gravel, Radiant cooling, Conduction, Convection, Analysis (mathematics).
- 34-2353**  
Thermohydrodynamic model of a large ice sheet. (Termogidrodinamicheskaia model' krupnogo lednikovogo shchita).  
Verbitskii, M.I.A., et al., *Akademiia nauk SSSR. Doklady*, Jan.-Feb. 1980, 250(1), p.59-61, In Russian. 9 refs.  
Chalikov, D.V.  
Glacier surfaces, Glacier flow, Ice temperature, Glacier melting, Ice sheets, Snow accumulation, Thermal conductivity, Mathematical models.  
A three-dimensional mathematical model of an ice sheet is proposed, based on a combined solution of equations for dynamics and thermal conductivity, with the surface relief as one of the unknown functions. A numerical experiment conducted with the model, using the West Antarctic and Greenland ice sheets, is described.
- 34-2354**  
Geological surveys of peat fields by radio echo sounding. (Geologicheskaia razvedka torfianykh mestorozhdenii metodom radiolokatsionnogo zondirovaniia).  
Bogorodskii, V.V., et al., *Akademiia nauk SSSR. Doklady*, 1980, 250(2), p.316-318, In Russian. 4 refs.  
Trepov, G.V.  
Peat, Radar echoes, Geological surveys, Swamps, Measuring instruments, Cold weather performance.
- 34-2355**  
Semiconductor resistance thermometers for the interval 300-0.3K.  
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- 34-2357**  
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Marine transportation, Navigation, Oil spills, Water pollution.
- 34-2358**  
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Microwaves, Radiometry, Snow cover, Runoff, Mathematical models.
- 34-2359**  
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For Phase II reports of this project see 32-4380 (CRREL SR 78-09) and 33-4228 (CRREL SR 79-15).  
Gunkel, R.C.  
Pavement bases, Porous materials, Compressive properties, Shear strength, Dynamic loads.
- 34-2360**  
Arctic marine technology: a review of ship resistance in ice.  
Peirce, T.H., *Naval architect*, July 1979, No.4, p.219-235. Includes discussion and author's reply. 8 refs.  
Ships, Sea ice, Ice cover thickness, Ice breaking.

- 34-2361**  
Extra roadbuilding skills beat Arctic's winter weather. *Engineering and contract record*, Jan. 1980, 93(1), p.60-62.  
**Roads, Cold weather construction, Canada—Yukon Territory.**
- 34-2362**  
Floristic regions of the world. (Floristicheskie oblasti Zemli).  
Iakhtadzhian, A.I. Leningrad, Nauka, 1978, 247p., In Russian. Refs. p.219-247. Pertinent p. 15-50. DLC QK101 F3  
**Arctic landscapes, Alpine landscapes, Cryogenic soils, Plant ecology, Vegetation, Ecosystems, Plant physiology, Antarctica.**  
The biogeography of Holantaretis is discussed in terms of the following subregions: Fernadazian, Chilean-Patagonian, the South subantarctic islands, including Kerguelen, and the Neozelandic Province, including the subantarctic islands south of New Zealand.
- 34-2363**  
Effects of seasonal changes and ground ice on electromagnetic surveys of permafrost.  
Arcone, S.A., et al. *U.S. Army Cold Regions Research and Engineering Laboratory*, Oct. 1979, CR 79-23, 33p. ADA-077 903  
Delaney, A.J., Sellmann, P.V.  
**Permafrost distribution, Electromagnetic prospecting, Seasonal variations, Ground ice.**  
The performance of surface impedance and magnetic induction electromagnetic subsurface exploration techniques was studied seasonally at various sites in Alaska where permafrost and massive ground ice occurred. The methods used have greatest sensitivity within about 20 m of the surface and are, therefore, most applicable for shallow subsurface investigations. The selection of study sites was based on anticipated contrasts in electrical resistivity between ground ice and adjacent earth materials. A magnetic induction instrument, using a separation of 3.66 m between the transmitter and receiver antennas, in general was able to detect near-surface zones of massive ice and to provide data regarding permafrost distribution in both the Fairbanks and Prudhoe Bay areas.
- 34-2364**  
Use of <sup>15</sup>N to study nitrogen transformations in land treatment.  
Jenkins, T.F., et al. *U.S. Army Cold Regions Research and Engineering Laboratory*, Sep. 1979, SR 79-31, 32p. ADA-077 583.  
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**Waste disposal, Water treatment, Irrigation, Soil chemistry.**  
The objective of this study was to compare different strategies of using <sup>15</sup>N as a tracer to describe the fate of wastewater N in land application of wastewater. Four soil columns were packed with Windsor sandy loam soil and covered with forage grass. The columns were treated with 7.5 cm of either tapwater or wastewater according to four experimental strategies. The strategies varied the treatment given the soil prior to application of the <sup>15</sup>N label, the schedule and amounts of the applied <sup>15</sup>N label, and the type of water used for subsequent column leaching. Soil solution at depth and leachate were analyzed weekly for concentration and <sup>15</sup>N content of nitrate and ammonium. Plant samples were obtained periodically throughout the experiment and, together with soil samples collected at the end of the experiment, analyzed for total nitrogen content and <sup>15</sup>N/<sup>14</sup>N ratios.
- 34-2365**  
Utilization of sewage sludge for terrain stabilization in cold regions. Pt. 3.  
Rindge, S.D., et al. *U.S. Army Cold Regions Research and Engineering Laboratory*, Oct. 1979, SR 79-34, 33p. ADA-077 585.  
Gaskin, D.A., Palazzo, A.J.  
**Waste disposal, Sewage disposal, Soil stabilization.**  
The authors have conducted a two-year revegetation study to assess the ability of sewage sludge applications with or without supplemental fertilizer to promote plant growth and stabilize sloping soils. The study site was a west-facing, 16 deg slope at CRREL in Hanover, New Hampshire. Eight revegetation treatments and one control were replicated three times. Treatments involved applications of dewatered, anaerobically digested sewage sludge at two rates (20 or 40 tons/acre). The sludge was applied alone or in combination with commercial fertilizers which supplied nitrogen, phosphorus and potassium, or all three nutrients. The seed mixture in the treatments contained four grasses and one legume. The effects of the various treatments were determined through soil loss yields, visual grass ratings and plant yields.
- 34-2366**  
Gamma dose rate test report for subsystem level evaluation of the ice detector B-1 program.  
Richardson, T.D. *Rockwell International, Los Angeles, B-1 Div. Report*, Apr. 1977, NA-76-437-1, 28p., ADB-043 135L, Distribution limited to U.S. Government agencies only.  
**Measuring instruments, Ice detection, Aircraft icing, Gamma irradiation.**
- 34-2367**  
Sandwich-type FLIR windows.  
Donadio, R., et al. Waltham, Massachusetts, Raytheon Co., 1979, 176p., ADB-042 424L, Distribution limited to U.S. Government agencies only.  
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**Windows, Cold weather performance.**
- 34-2368**  
Northern Smith Sound oceanography—summer 1977.  
Tooma, S.G., *U.S. Naval Research and Development Activity, NSTL Station, MS. Report*, Mar. 1978, NORDA-TN-21, 28p. ADA-079 885.  
**Oceanography, Polynyas, Water structure, Smith Sound.**
- 34-2369**  
Statistical methods of probable use for understanding remote sensing data.  
Gaver, D.P., *U.S. Naval Postgraduate School. Technical report*, Oct. 1979, NPS55-79-020, 40p. ADA-076 908.  
**Statistical analysis, Ice formation, Pressure ridges, Remote sensing.**
- 34-2370**  
Airflow effects on riming measurements by a wing tip-mounted detector on MC-30E research airplane.  
Norment, H.G., Bedford, Massachusetts, Atmospheric Science Associates, 1979, 40p. ADA-077 019.  
**Ice detection, Measuring instruments, Airborne equipment, Aircraft icing.**
- 34-2371**  
Scale model ultrasonic study of Arctic ice. Part 2.  
Himberger, D.E., et al. *Georgetown University, Dept. of Physics. Report*, Dec. 1979, GUUS-127910, 64p. ADA-079 401, M.Sc. thesis.  
Mayer, W.G.  
**Sea ice, Ice acoustics, Ice bottom surface, Ice cover thickness, Computer applications.**
- 34-2372**  
Considerations on the origin and properties of the antarctic aerosol.  
Shaw, G.E., *Reviews of geophysics and space physics*, Nov. 1979, 17(8), p.1983-1998, Refs. p.1996-1998.  
**Aerosols, Snow composition, Ice composition, Particle size distribution.**  
Information pertaining to aerosols and to microparticles, preserved in snow and ice on the high plateau of Antarctica, is assembled and interpreted with a diffusive transport model. The boundary conditions for the problem involve the existence of a two-mode microparticle size distribution function. The smaller (Aitken) mode likely consists of converted products from nucleation of trace gases, the particles are less than 2.3 days old and are produced locally over the ice caps at a production rate of  $4 \times 10^{-10}$  exp 21 g/cu cm/s. The Aitken particles are present in concentrations of 100-1,000/cu cm throughout the troposphere, except in the lowest few hundred meters within the turbulent boundary layer, where they are depleted. The Aitken particles are probably composed of converted sulfates and hydrocarbons. Large particles approx 0.4 microm in radius are also found in Antarctica, in concentrations of 0.5/cu cm; these particles dominate the aerosol mass. The large particles are estimated to have come from (1) unidentified sulfate sources, (2) oceanic sources surrounding the continent, (3) arid regions in the southern hemisphere, (4) extraterrestrial sources, and (5) oases on the continent in that order of importance. Turbulent diffusion seems to be the primary particle transport mechanism. Particle removal mechanisms are discussed.
- 34-2373**  
XV 859; the Falkland Island craft.  
Russell, B.J., *Hovering craft and hydrofoils*, Jan. 1978, 17(4), p.13-17.  
**Air cushion vehicles, Falkland Islands.**  
Built by the British Hovercraft Corporation for operation by the Falkland Island Hovercraft Detachment, the SR.N6 Mk 1 hovercraft's main task is to transport 12 fully equipped Royal Marines to any position in the Falkland Islands day or night. In addition, the craft has been employed to support the marines on detachment for such tasks as aircraft spotting and casualty evacuation. Notable achievements of the craft include complete circumnavigation of the Falklands, either around the islands or in a figure 8 through the Falkland Sound. Many overland journeys were made. Topographical details of the Falkland Islands are discussed. Following refurbishment in Fleetlands, the craft was returned to service in 1974, and has been employed in driver training, demonstrations, logistics tasks, and navigational exercises.
- 34-2374**  
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Aver'ianov, V.G., *Polar geography*, Oct.-Dec. 1979, 3(4), p.189-202, Translated from Akademii nauk SSSR, Izvestiia, Seriya geograficheskaya, 1979, No.1, p.22-30, 23 refs.  
**Ice sheets, Mass balance, Ice air interface, Heat balance, Radiation balance.**  
The values of the components of the heat budget of the ice surface, of the atmosphere above it, and of the ice surface-atmosphere system are found, mainly by indirect methods, for Antarctica as a whole. (Auth.)
- 34-2375**  
Experience in the construction of pile foundations under frozen-ground conditions in the Vorkuta region.  
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**Pile structures, Pile driving, Frozen ground strength, Permafrost beneath structures, Soil composition.**
- 34-2376**  
Generalization of experience in constructing buildings on fill.  
Goriainov, G.F., et al. *Soil mechanics and foundation engineering*, Jan. 1980, 16(4), p.185-188, 7 refs., Translated from Osnovaniia, fundamenti i mekhanika gruntov, Semchenov, T.K.  
**Rock fills, Cold weather construction, Buildings, Permafrost beneath structures.**
- 34-2377**  
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Pavlenov, V.A., et al. *Soil mechanics and foundation engineering*, Jan. 1980, 16(4), p.202-206, 6 refs., Translated from Osnovaniia, fundamenti i mekhanika gruntov, Dzhurik, V.I., Zarubin, N.E.  
**Frozen ground physics, Seismic surveys, Explosion effects, Permafrost beneath structures, Railroad tracks, Earthquakes, Water.**
- 34-2378**  
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**Frozen ground physics, Artificial thawing, Ground thawing, Cryogenic structures, Deformation, Soil compacting, Soil composition, Tests.**
- 34-2379**  
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**Construction materials, Loads (forces), Strength, Tensile properties, Temperature effects, Aluminum, Shock waves, Impact strength.**
- 34-2380**  
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**Soil formation, Freeze thaw cycles, Soil water migration, Heat transfer.**
- 34-2381**  
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**Concrete aggregates, Large panel buildings, Frost resistance, Concretes, Heat transfer.**
- 34-2382**  
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Alumiaev, A.E., Issledovanie po stroitel'stvu. Stroitel'naiia teplofizika. Dolgovechnost' konstruktov (Construction research. Thermal physics. Structural durability), Tallin, Valgus, 1979, p.30-39, In Russian.  
**Residential buildings, Large panel buildings, Walls, Panels, Thermal insulation, Heat transfer, Moisture.**

34-2383

Quick method of forecasting frost resistance of autoclaved slate-ash cellular concrete. [Uskorenyy metod prognozirovaniia morozostoikosti avtoklavnogo slantsevol'nogo gazobetonaj, Kremerman, T.B., et al. Issledovanie po stroitel'stvu Stroitel'naia teplofizika. Dolgovechnost' konstruktov (Construction research. Thermal physics. Structural durability). Tallin, Valgus, 1979, p.123-126. In Russian. 2 refs. Galibina, E.A. Cellular concretes, Concrete aggregates, Frost resistance.

34-2384

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34-2385

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34-2388

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34-2389

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34-2391

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34-2392

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34-2399

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34-2401

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34-2403

Heat transfer through joints in external enclosures of industrial buildings in the North. [Teplotekhnicheskie kachestva uzlov sopriazheniya naruzhnykh ograzhdayushchikh konstruktov promyshlennykh zdaniy na Severe, Butlitskiy, A.E., et al. *Moscow. Tsentral'nyy nauchno-issledovatel'skiy i proektno-eksperimental'nyy institut promyshlennykh zdaniy i sooruzheniy. Trudy*, 1976, Vol.7, p.59-75. In Russian. 5 refs. Golubchikova, O.G. Industrial buildings, Walls, Joints (junctions), Heat loss, Moisture transfer, Icing.

34-2404

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34-2405

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34-2406

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34-2407

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34-2408

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34-2409

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34-2411

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The paper is composed of 9 reports by exchange Finnish scientists on their investigations in the Quebec-Labrador Peninsula. Topics include: fungi; vascular plants; cloudberry bushes; insect herbivores of birch foliage; invertebrates of birch and tamarack; growth of lepidopteran larvae; ground layer invertebrates; butterflies, and sediment transport.

34-2412

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Glaze-wind forces on power lines in Central Asia. [Golosedno-vetrovye nagruzki na vozduzhnykh liniakh v Srednet Azii, Leukhina, G.N., *Sredneaziatskiy regional'nyy nauchno-issledovatel'skiy gidrometeorologicheskij institut. Trudy*, 1979, Vol.70, p.67-72. In Russian. 4 refs. Power line icing, Power line supports, Ice accretion, Ice loads, Wind factors, Loads (forces).

- 34-2414**  
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Ilinova, E.S.  
Precipitation (meteorology), Snow accumulation, Moisture meters, Seasonal variations, Weather observations.
- 34-2415**  
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- 34-2416**  
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Heat pipes, Soil freezing, Artificial freezing, Permafrost control, Models.
- 34-2417**  
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Soil microbiology, Taiga, Tundra, Bacteria, Seasonal variations.
- 34-2418**  
Dynamics of microbial biomass in taiga soils of West Siberia. (Dinamika mikrobnol biomassy v pochvakh taezhnogo landshafta Zapadnot Sibirii). Antonenko, A.M., et al. Biodinamika i plodorodie pochvy: Materialy 2 simpoziuma Biodinamika pochvy (Biodynamics and soil productivity: Proceedings of the 2nd Symposium on Biodynamics of soils). Edited by P.Kh. Rakhno, Tallin, AN ESSR, 1979, p.69-72. In Russian. 3 refs.  
Nikitina, Z.I.  
Soil microbiology, Taiga, Biomass.
- 34-2419**  
Population dynamics of microorganisms in podsol in Kola Peninsula. (Dinamika chislennosti mikroorganizmov v podzolistykh pochvakh Kol'skogo poluosrova). Pereverzev, V.N., et al. Biodinamika i plodorodie pochvy: Materialy 2 simpoziuma Biodinamika pochvy (Biodynamics and soil productivity: Proceedings of the 2nd Symposium on Biodynamics of soils). Edited by P.Kh. Rakhno, Tallin, AN ESSR, 1979, p.73-76. In Russian.  
Logvinova, M.M.  
Soil microbiology, Podsol, Seasonal variations, Bacteria.
- 34-2420**  
Dynamics of bacterial community growth in tundra soils of southern Taymyr. (Dinamika razvitiia bakterial'nykh soobshchestv v tuznykh tundr Taymyra). Parinkina, O.M., Biodinamika i plodorodie pochvy: Materialy 2 simpoziuma Biodinamika pochvy (Biodynamics and soil productivity: Proceedings of the 2nd Symposium on Biodynamics of soils). Edited by P.Kh. Rakhno, Tallin, AN ESSR, 1979, p.100-103. In Russian. 2 refs.  
Tundra, Soil microbiology, Bacteria.
- 34-2421**  
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Snow mechanics, Snow elasticity, Snow compression, Viscosity, Snow (construction material), Engineering, Design, Theories.
- 34-2422**  
Properties of frozen base course in West Texas. Campbell, W.R., Jr., et al. *Texas Transportation Institute. Research report*, Mar. 1979, 207-4, 94p. PB-300 983.  
Lytton, R.L.  
Pavement bases, Frost heave, Freeze thaw cycles, Soil freezing.
- 34-2423**  
Seasonal oil production scheme for iceberg-infested waters, Part 2. Duval, J., et al. *Ocean industry*, Jan. 1980, 15(1), p.19-20, 25-26.  
Mercier, G., Morin, P.  
Oil recovery, Offshore drilling, Bottom drilling, Icebergs, Ice scoring.
- 34-2424**  
Trials of the deicing equipment installed on YTB-771 (Keokuk). Kenney, W.P., U.S. Department of the Navy. David W. Taylor Naval Ship Research and Development Center, Bethesda, Maryland. Report, Sep. 1976. 134 p. 70, 220 figs. For official use only.  
Ship icing, Ice removal.
- 34-2425**  
Cold weather concreting. Skokie, Illinois. Portland Cement Association, 1975, 9p., 10 refs.  
Winter concreting, Insulation, Heating, Concrete placing, Air entrainment, Concrete strength.
- 34-2426**  
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Sakai, A., ed.  
DLC QK756.P53  
Meetings, Cold stress, Cold tolerance, Plants (botany), Plant physiology, Vegetation, Agriculture, Acclimatization, Supercooling.
- 34-2427**  
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DLC QC1.H65 no.27  
Temperature inversions, Heat transfer, Snow air interface, Radiant cooling, Heat balance, Mountains.
- 34-2428**  
Growth of ice in a saltwater drop falling in an organic phase. Bustany, S.T., et al. *American Institute of Chemical Engineers. AIChE journal*, May 1979, 25(3), p.439-446, 24 refs.  
Harriott, P., Wiegandt, H.F.  
Ice growth, Salt water, Mathematical models, Heat transfer, Mass transfer, Desalting.
- 34-2429**  
Iceberg scouring on the Labrador Shelf, Saglek Bank. Gustajitis, K.A., Memorial University of Newfoundland. Centre for Cold Oceans Resources Engineering. C-CORE publication, Nov. 1979, 79-13, 89p., 57 refs.  
Icebergs, Ice scoring, Seismic surveys, Ocean currents, Drift.
- 34-2430**  
Project SAR '77 summary report. Worsfold, R.D., ed. Memorial University of Newfoundland. Centre for Cold Oceans Resources Engineering. C-CORE publication, Dec. 1979, 79-15, 402p., Refs. p.397-402.  
Sea ice, Floating ice, Icebergs, Radar echoes, Aerial surveys, Ground truth, Oceanography, Meteorological data.
- 34-2431**  
Mass balance of the Ward Hunt Ice Rise and Ice Shelf: an 18 year record. Serson, H.V., Canada. Defence Research Establishment Pacific. Technical memorandum, Nov. 1979, 79-4, 14p., In English with French summary. 18 refs.  
Ice accretion, Mass balance, Ablation.
- 34-2432**  
Effect of third generation tire studs on pavement wear reduction, 1977-1979; report of test results on wear from various tire-stud combinations. Cook, J.C., Washington State University. Transportation Engineering Section. Report, June 1979, No.79/15-27, 88p., 20 refs.  
Pavements, Damage, Tires.
- 34-2433**  
Environmental geology and geomorphology of the barrier island-lagoon system along the Beaufort Sea coastal plain from Prudhoe Bay to the Colville River. Cannon, P.J., et al. Alaska University Sea Grant Program. Report, Aug. 1979, 79-6, Alaska Science Conference, 29th, Fairbanks, Aug. 15-17, 1979. Proceedings (Alaska fisheries: 200 years and 200 miles of change), edited by B.R. Melteff, p.335-345, 12 refs.  
Rawlinson, S.E.  
Offshore landforms, Shore erosion, Tundra, Sediment transport.
- 34-2434**  
Drainage network analysis of a subarctic watershed. Bredthauer, S., et al. Alaska University Sea Grant Program. Report, Aug. 1979, 79-6, MP-1274, Alaska Science Conference, 29th, Fairbanks, Aug. 15-17, 1979. Proceedings (Alaska fisheries: 200 years and 200 miles of change), edited by B.R. Melteff, p.349-359, 8 refs.  
Hoch, D.  
Watersheds, Drainage, Stream flow.  
A drainage network map of the Caribou-Poker Creek Research Watershed, near Fairbanks, Alaska, has been used to conduct a Strahler stream order analysis and an analysis of length distributions of source and tributary-source links in a subarctic watershed. The basins have very low drainage densities, ranging from 1.35 km/sq km to 5.34 km/sq km. Bifurcation ratios were higher than those found in watersheds in the continental U.S. Statistical analysis indicates that source and tributary-source links in a subarctic watershed belong to different length populations, the same as found in other regions of the world. Additional analysis indicates that exterior links originating on permafrost slopes tend to be shorter than those originating on non-permafrost (well-drained) slopes.
- 34-2435**  
Frost susceptibility of some gravels used in road construction in Ireland. Davitt, S., Dublin, 1978, 35p., 7 refs.  
Gravel, Frost resistance, Frost heave, Roads, Ireland.
- 34-2436**  
Effect of permafrost on evolution of river beds and hydraulic structures built on river beds and river banks. (Vliianie vechnot merzloty na ruslovyie protsessy i gidrotekhnicheskie sooruzheniia, raspolozhennye v rusle i na beregakh rek). Levashov, A.A., et al. Leningrad Politekhnikeskii institut. Mezhyuzovskii sbornik, 1977, No.63, p.12-17. In Russian. 9 refs.  
Shmidt, S.V., Strel'chenia, O.M., Kovrigin, I.M.  
Permafrost beneath rivers, Permafrost beneath structures, Permafrost thermal properties, River basins, Hydraulic structures, Banks (waterways), Drift, Active layer, Floods.
- 34-2437**  
Ecological and phytocenological complexes of Asiatic Russia (Experience in mapping). (Ekologo-fitosenoticheskie komplekсы Aziatskoi Rossii (Opyt kartografirovaniia)). Sochava, V.B., ed. Irkutsk, Institut geografii Sibiri i Dal'nego Vostoka, 1977, 70p., 4 map. In Russian. Refs. passim. For selected article see 34-2438.  
Arctic landscapes, Vegetation patterns, Plant ecology, Geobotanical interpretation, Mapping, Classifications.
- 34-2438**  
Method of compiling and brief analysis of a correlative ecological and phytocenological map of Asiatic Russia, scale of 1:7,500,000. (Metodika sostavleniia i kratkii analiz korrelatsionnoi ekologo-fitosenoticheskoi karty Aziatskoi Rossii m. 1:7 500 000). Buks, I.I., Ekologo-fitosenoticheskie komplekсы Aziatskoi Rossii (Opyt kartografirovaniia) (Ecological and phytocenological complexes of Asiatic Russia (Experience in mapping)). Edited by V.B. Sochava, Irkutsk, Institut geografii Sibiri i Dal'nego Vostoka, 1977, p.15-54. In Russian. 30 refs.  
Arctic landscapes, Mapping, Plant ecology, Vegetation patterns, Classifications.
- 34-2439**  
Proceedings. Iceberg Dynamics Symposium, St. John's, Newfoundland, Canada, June 4-5, 1979. Cold regions science and technology, Feb. 1980, 1(3/4), p.167-306. For individual papers see 34-2440 through 34-2452, or F-22981, G-22982 and F-22983.  
Russell, W.E., ed.  
Meetings, Icebergs, Dynamic properties.  
This issue is devoted to the papers presented at an international symposium dealing with theoretical and practical problems associated with iceberg drift. The symposium was sponsored by the Newfoundland Oceans Research and Development Corp., with assistance from the U.S. Coast Guard and the Department of Industrial Development, Province of Newfoundland and



Labrador. Participants included scientists and engineers who had contributed to the understanding of the physical nature of iceberg drift and to the development of concepts or systems related to both utilization of icebergs and to protection of structures from iceberg impact.

34-2440

**West Greenland outlet glaciers: an inventory of the major iceberg producers.**

Koillmeyer, R.C., *Cold regions science and technology*, Feb. 1980, 1(3/4), p.175-181, 4 refs.

**Icebergs, Glaciers, Ice conditions, Greenland.**

34-2441

**Long-term drift of icebergs in Baffin Bay and the Labrador Sea.**

Robe, R.Q., et al., *Cold regions science and technology*, Feb. 1980, 1(3/4), p.183-193, 8 refs.

Maier, D.C., Russell, W.E.

**Icebergs, Drift, Remote sensing, Tracking (position).**

34-2442

**Potential of SAR in detecting and monitoring icebergs.**

Parashar, S., et al., *Cold regions science and technology*, Feb. 1980, 1(3/4), p.195-210, 17 refs.

Stapleton, G., Worsfold, R.

**Icebergs, Radar echoes, Radar tracking, Remote sensing.**

34-2443

**Ocean eddy structure by satellite radar altimetry required for iceberg towing.**

Campbell, W.J., et al., *Cold regions science and technology*, Feb. 1980, 1(3/4), p.211-221, 16 refs.

Cheney, R.E., Marsh, J.G., Mognard, M.N.

**Ocean currents, Spacecraft, Iceberg towing.**

Recent oceanographic research indicates that most of the ocean momentum is probably involved in intense rings, formed by meanders of the large streams, and in mid-ocean eddies. These rings and eddies have typical dimensions on the order of 200 km with dynamic height anomalies across them of tens of centimeters to a meter. They migrate at speeds on the order of a few cm/sec. Current velocities as great as 3 knots have been observed in rings, and currents of 1 knot are common. Thus, the successful towing of icebergs is dependent on the ability to locate, measure, and track ocean rings and eddies. To accomplish this systematically on synoptic scales appears to be possible only by using satellite-borne radar altimeters. Ocean current and eddy structures as observed by the radar altimeters on the GEOS-3 and Seasat-1 satellites are presented and compared. The Antarctic Circumpolar Current is ideally suited for using this technique to identify, monitor and eventually map its rings and eddies on synoptic scales. (Auth. mod.)

34-2444

**Environmental factors affecting iceberg scour estimates.**

Chari, T.R., et al., *Cold regions science and technology*, Feb. 1980, 1(3/4), p.223-230, 15 refs.

Peters, G.R., Mathukrishnaiah, K.

**Icebergs, Ground ice, Ice scouring, Models.**

34-2445

**High-force towing.**

Mellor, M., *Cold regions science and technology*, Feb. 1980, 1(3/4), p.231-240, 5 refs.

**Iceberg towing, Loads (forces).**

Required force levels for iceberg towing at 1 knot could be at least 50 tons for protection of structures and drillships in northern waters, and around 1000 tons for iceberg exports from the Antarctic. Corresponding values of effective ("towrope") power are only 307 hp and 6140 hp, respectively. Moderately large conventional tugs typically have thrust/power (T/P) ratios of 20-25 lb/hp with unshrouded propellers, and perhaps 30%-40% more with Kort nozzles. As tug size increases, the propeller loading usually has to increase and T/P decreases. A conventional-hull supertug capable of 1000 tons thrust would probably have T/P = 10 lb/hp, p = 200,000 hp, and a propulsive efficiency of about 3%. Unconventional propellers, paddles, and water jets have little to offer, but efficiency could be improved with an unconventional hull that provides space for large propeller area. If an iceberg is propelled by pulling a drogue towards it, the propulsive efficiency increases as speed of the drogue decreases, but the required drogue area increases. For antarctic towing the demands exceed current capabilities for winch force, winch power and line speed. If an iceberg is towed against a bottom anchor, the propulsive efficiency is 100%, and power demands are modest. While such a system is feasible for relatively shallow waters, it would be very difficult to use in the deep oceans. For any system that has to develop very high towing forces, the tow cable itself is a problem. The safe working load of 6-in. wire rope is less than 300 tons, or 3 1/2 times less than the 1000-ton force that might be needed to move useful antarctic icebergs. The most practical expedient for antarctic towing seems to be use of multiple conventional tugs, with fewer tugs or higher speeds as the iceberg reduces its size and streamlines itself. The practical difficulty of towing antarctic icebergs may have been underestimated, and it might be worth reconsidering preliminary shaping of the iceberg to reduce the drag. (Auth.)

34-2446

**On the size distribution of Antarctic icebergs.**

Neshyba, S., *Cold regions science and technology*, Feb. 1980, 1(3/4), p.241-248, 14 refs.

**Icebergs, Distribution, Models, Antarctica.**

Composites are given of six reported antarctic iceberg size distributions, and theoretical Rayleigh distributions are fitted with reasonable small errors. A modal length of 0.4 km is found for observations in East Antarctica; this increases to 0.7 km when size data for icebergs observed by satellite in or near the pack ice in the Bellingshausen Sea are added. Results of model investigation of the equilibrium or standing population size distribution, based on the Gordenko observations of sizes near the Amery Ice Shelf as initial conditions and annual input together with the constraints of uniform sidewall wastage rate and that length-width ratios be maintained within the range 1.1 to 2.2 by iceberg fracturing into equal parts, show a distribution much unlike the Rayleigh in that the highest probability of occurrence is of icebergs of widths 0-0.2 km. The model size distribution attains equilibrium after 21 years, at which time it is fitted very well to a Weibull distribution with parameters  $\beta = 0.5$ ,  $\alpha = 1.6$  and  $\gamma = 0$ . A method is outlined by which the size distribution of freshly-calved icebergs might be assessed for use as the initial condition to such models. (Auth.)

34-2447

**Experiments involving melting of a large ice block towed in sea water.**

Fuhs, A.E., et al., *Cold regions science and technology*, Feb. 1980, 1(3/4), p.249-264, 17 refs.

**Ice melting, Ice deterioration, Icebergs, Experimentation, Sea water.**

34-2448

**Measurement of thermal conduction within a large fresh water ice block being towed in sea water.**

Clifford, W., et al., *Cold regions science and technology*, Feb. 1980, 1(3/4), p.265-272, 7 refs.

Erman, R., Fuhs, A., Stolfi, R.

**Thermal conductivity, Iceberg towing, Ice temperature, Heat transfer, Experimentation.**

34-2449

**On predicting iceberg drift.**

Mountain, D.G., *Cold regions science and technology*, Feb. 1980, 1(3/4), p.273-282, 5 refs.

**Icebergs, Drift, Ice forecasting, Models, Wind factors, Ocean currents.**

34-2450

**Iceberg drift observations in Lancaster Sound.**

Riggs, N.P., et al., *Cold regions science and technology*, Feb. 1980, 1(3/4), p.283-291, 4 refs.

Thangam Babu, P.V., Sullivan, M.A., Russell, W.E.

**Icebergs, Drift, Ice conditions, Ocean currents, Meteorological factors, Lancaster Sound.**

34-2451

**Monte Carlo simulation of iceberg impact probabilities.**

Reddy, D.V., et al., *Cold regions science and technology*, Feb. 1980, 1(3/4), p.293-297, 4 refs.

Arockiasamy, M., Cheema, P.S., Riggs, N.P.

**Icebergs, Computerized simulation, Mathematical models, Impact, Offshore structures.**

34-2452

**Dimensional modelling of icebergs.**

Benedict, C.P., *Cold regions science and technology*, Feb. 1980, 1(3/4), p.299-306, 1 ref.

**Icebergs, Ice models, Mathematical models.**

34-2453

**Western Ross Sea and McMurdo Sound ice forecasting guide.**

Perchal, R.J., *U.S. Naval Oceanographic Office. Special publication*, June 1975, NOO SP-265, 132p., Refs. p.59-62.

**Sea ice, Ice conditions, Ice forecasting, Pack ice, Meteorological factors, Long range forecasting, Antarctica—Ross Sea, Antarctica—McMurdo Sound.**

Procedures for preparing short-range (48-hour) forecasts and long-range (15- and 30-day) estimates of austral summer sea ice conditions in the western Ross Sea and McMurdo Sound are given. Background data on environmental factors of mean storm tracks, mean monthly sea level pressure (winds) and surface air temperature over the Ross Sea and austral summer ice conditions over the western Ross Sea and McMurdo Sound are given. Analyses of historical ice edge data which are based on observations taken over sixteen years from *Deep Freeze I* (1955-56) through *Deep Freeze VII* (1970-71) indicate median positions of the north and south pack edges at half-monthly intervals from October through January. Ice data also include the range of locations of pack edges, distribution of pack concentrations, percentage of large floe sizes, and ice thickness. Analyses of the thickness and median extent and extremes of fast ice in McMurdo Sound are included. Selection of optimum ice routes is described, using mean ice concentrations and the percentage of large floe sizes. (Auth. mod.)

34-2454

**Three examples of unsolved problems in antarctic radiation research.**

Kuhn, M., *Desert Research Institute. Laboratory of Atmospheric Physics. Technical report*, 1975, Ser. P. No.18, Report of Polar Meteorology Workshop, Reno, Nevada, 1975, p.66-67.

**Snow surface, Reflectivity, Radiation absorption, Heat transfer.**

The following problems identified in research relating to radiation in the Antarctic are discussed: 1) optical determination of

long-term trends in the pollution (turbidity) of stratospheric air masses, 2) analysis of the reflective properties of the snow surface in terms of ray geometry, age or crystallography of the snow, and surface features, 3) the use of reflective properties of snow in near infrared wavelengths as a basis for computing the amount of atmospheric heating in the H<sub>2</sub>O and CO<sub>2</sub> absorption bands.

34-2455

**911 years of microparticle deposition at the South Pole: a climatic interpretation.**

Thompson, E.M., Columbus, Ohio State University, 1979, 200p., Ph.D. thesis. Refs. p.187-200.

**Ice cores, Drill core analysis, Electron microscopy, Particles, Paleoclimatology, Antarctica—South Pole.**

A detailed analysis is presented of the particles in a 101-m core from Amundsen-Scott Station, which contains approximately a one thousand year record of atmospheric particle concentrations over the East Antarctic plateau. The work is organized in 8 chapters: 1) an introduction; 2) the physical and meteorological characteristics of the central Antarctic plateau; 3) the climatic history of the earth, with emphasis on the Little Ice Age; 4) the basic properties of the tropospheric and stratospheric particles; 5) a technical description of the entire microparticle analysis procedure; 6) details of the method used to construct the time scale for the 101-m core; 7) interpretation of the microparticle data; and 8) conclusions and future research. Supplementary tables and scanning electron microscope micrographs are presented in appendixes.

34-2456

**Hot Arctic.**

Dyson, J., Boston, Little, Brown and Co., 1979, 290p., No microfiche available.

**Cold weather operation, Equipment, Oil spills, Pipelines, Water pollution, Icebreakers, Environmental impact, Survival, Animals.**

34-2457

**Taiga in the global ecosystem. [Taiga v global'noi ekosisteme Zemli].**

Rasshirennoe zasiedanie Nauchnogo Soveta Sibirskogo otdeleniya AN SSSR po kompleksnomu osvoeniiu taezhnykh territorii. Irkutsk, May 24-25, 1977. Irkutsk, Institut geografii Sibiri i Dal'nego Vostoka, 1978, 112p., In Russian. Refs. passim. For selected papers see 34-2458 through 34-2470.

Mikhailov, I.U.P., ed.

**Taiga, Landscape types, Forest ecosystems, Environmental protection, Human factors, Geobotanical interpretation.**

34-2458

**Taiga geosystems and problems of interaction between man and taiga. [Geosistemy taigi i problemy sotvorchestva cheloveka s taezhnoi prirodou].**

Sochaya, V.B., *Taiga v global'noi ekosisteme Zemli (Taiga in the global ecosystem)* edited by I.U.P. Mikhailov. Irkutsk, Institut geografii Sibiri i Dal'nego Vostoka, 1978, p.5-13, In Russian.

**Taiga, Forest ecosystems, Geobotanical interpretation, Landscape types, Biomass, Moisture, Solar radiation, Human factors, Models.**

34-2459

**Taiga and its place in the global ecosystem. [Taiga i ee mesto v global'noi ekosisteme].**

Krauklis, A.A., et al., *Taiga v global'noi ekosisteme Zemli (Taiga in the global ecosystem)* edited by I.U.P. Mikhailov. Irkutsk, Institut geografii Sibiri i Dal'nego Vostoka, 1978, p.14-26, In Russian. 19 refs.

Mikhailov, I.U.P.

**Taiga, Forest ecosystems, Geobotanical interpretation, Human factors, Water reserves.**

34-2460

**Experiment in landscape studies for optimizing taiga landscapes of the European USSR. [Opyt landshtafnykh issledovaniy v tseliakh optimizatsii taezhnykh landshtaflov evropeiskoi chasti SSSR].**

Isachenko, A.G., *Taiga v global'noi ekosisteme Zemli (Taiga in the global ecosystem)* edited by I.U.P. Mikhailov. Irkutsk, Institut geografii Sibiri i Dal'nego Vostoka, 1978, p.26-34, In Russian. 6 refs.

**Taiga, Landscape types, Geobotanical interpretation, Environmental protection.**

34-2461

**Remote sensing of taiga geosystems in different spectral ranges. [Distantsionnaya indikatsiya taezhnykh geosistem v raznykh spektral'nykh intervalakh].**

Vinogradov, B.V., *Taiga v global'noi ekosisteme Zemli (Taiga in the global ecosystem)* edited by I.U.P. Mikhailov. Irkutsk, Institut geografii Sibiri i Dal'nego Vostoka, 1978, p.34-42, In Russian. 14 refs.

**Taiga, Landscape types, Remote sensing, Geobotanical interpretation, Forest ecosystems, Aerial surveys, Spectra.**

34-2462

**Forest resource analysis as a bioeconomical approach to studying the natural potential of taiga.** (Lesnoe resursovedenie kak bioekonomicheskii podkhod k izucheniiu prirodnogo potentsiala taigi). Shelgauz, A.S. Taiga v global'noi ekosisteme Zemli (Taiga in the global ecosystem) edited by I.U.P. Mikhailov, Irkutsk, Institut geografii Sibiri i Dal'nego Vostoka, 1978, p.42-53, In Russian. 24 refs.

**Taiga, Forest ecosystems, Geobotanical interpretation, Forestry, Wood.**

34-2463

**Spruce forests as a stabilizing component of taiga biome in the European North.** (El'niki kak stabiliziruiushchii komponent taizhnogo bioma na Evropeiskom Severe). Dyrenkov, S.A. Taiga v global'noi ekosisteme Zemli (Taiga in the global ecosystem) edited by I.U.P. Mikhailov, Irkutsk, Institut geografii Sibiri i Dal'nego Vostoka, 1978, p.53-58, In Russian. 8 refs.

**Taiga, Forest ecosystems, Growth, Human factors, Wood, Forestry.**

34-2464

**Structural potential and improvement in the use of pine forests of various ages in Siberia.** (Strukturnyi potentsial i voprosy ratsionalizatsii lesopol'zovaniia v raznovozrastnykh sosnovykh lesakh Sibiri). Verkhunov, P.M. Taiga v global'noi ekosisteme Zemli (Taiga in the global ecosystem) edited by I.U.P. Mikhailov, Irkutsk, Institut geografii Sibiri i Dal'nego Vostoka, 1978, p.58-63, In Russian.

**Taiga, Forestry, Forest ecosystems, Wood.**

34-2465

**Taiga larch forests in Sikhote-Alin and their management.** (Tachnye listvennichnye lesa Sikhote-Alinia i khoziaistvo v nikh). Gukov, G.V. Taiga v global'noi ekosisteme Zemli (Taiga in the global ecosystem) edited by I.U.P. Mikhailov, Irkutsk, Institut geografii Sibiri i Dal'nego Vostoka, 1978, p.63-70, In Russian.

**Taiga, Forestry, Forest ecosystems, Economic development, Wood.**

34-2466

**Dynamics of spruce ecosystems in the southern taiga.** (Osobennosti funktsionirovaniia ekosistem el'nikov Iuzhnoi taigi). Glazov, M.V., et al. Taiga v global'noi ekosisteme Zemli (Taiga in the global ecosystem) edited by I.U.P. Mikhailov, Irkutsk, Institut geografii Sibiri i Dal'nego Vostoka, 1978, p.70-73, In Russian.

**Taiga, Forestry, Forest ecosystems, Growth.**

34-2467

**Mapping of taiga vegetation for the forecasting of its variations due to possible changes in moisture conditions.** (Kartografirovaniie rastitel'nogo pokrova taigi dlia tseli prognoza ego izmeneniia v sviazi s vozmozhnoi peremenoi uslovii uvlazhneniia). Shvergunova, L.V., et al. Taiga v global'noi ekosisteme Zemli (Taiga in the global ecosystem) edited by I.U.P. Mikhailov, Irkutsk, Institut geografii Sibiri i Dal'nego Vostoka, 1978, p.74-79, In Russian.

**Taiga, Geobotanical interpretation, Forecasting, Moisture, Mapping, Aerial photography, Plant ecology, Swamps.**

34-2468

**Outlook for the development of forest industry in the Baykal Amur railroad zone.** (Perspektivy razvitiia lesnoi promyshlennosti v zone BAMa). Alekhin, V.G. Taiga v global'noi ekosisteme Zemli (Taiga in the global ecosystem) edited by I.U.P. Mikhailov, Irkutsk, Institut geografii Sibiri i Dal'nego Vostoka, 1978, p.80-89, In Russian.

**Taiga, Forestry, Economic development, Wood.**

34-2469

**Characteristics in studies and classification of alpine forest soils in the western Sayan.** (Osobennosti izucheniia i klassifikatsii gorno-lesnykh pochv Zapadnogo Saianaja). Kochurov, B.I. Taiga v global'noi ekosisteme Zemli (Taiga in the global ecosystem) edited by I.U.P. Mikhailov, Irkutsk, Institut geografii Sibiri i Dal'nego Vostoka, 1978, p.93-98, In Russian. 4 refs.

**Taiga, Soil classification, Alpine landscapes, Soil formation, Soil profiles, Slope orientation, Mapping.**

34-2470

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34-2472

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34-2473

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34-2474

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**Lake ice, Freezeup, Ice forecasting, Remote sensing, LANDSAT, Meteorological data, United States—Minnesota.**

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34-2476

**Sediment transport and bed forms under ice cover.** Song, G.B. Iowa City, University of Iowa, 1978, 79p. M.S. thesis. 25 refs.

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34-2477

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**Railroad equipment, Cold weather operation, Ice prevention, Snow removal, Heating.**

34-2478

**Technical Committee report on operational and winter maintenance.** World Road Congress, 16th, Vienna, Sep. 16-21, 1979, Vienna, Permanent International Association of Road Congresses, 1979, 120p.

**Winter maintenance, Road maintenance, Equipment, Road icing, Salting, Ice prevention, Snow removal, Water pollution, Soil pollution, Brines, Cost analysis, Meetings.**

34-2479

**Oil spill scenario for the Labrador Sea.** LeDrew, B.R., et al. Canada. Environmental Protection Service. Economic and technical review report, Nov. 1979, EPS 3-EC-79-4, 675p. In English with French summary. Chapters by various authors. Numerous refs. passim. Also designated Memorial University of Newfoundland. Centre for Cold Ocean Resources Engineering. C-CORE publication 78-2.

**Gustajis, K.A. Oil spills, Sea ice, Ice conditions, Icebergs, Marine geology, Climatology, Oceanography, Logistics, Environmental impact, Labrador Sea.**

34-2480

**Soil freezing and highway construction.** Ottawa, Canada, Carleton University, 1978, 105p. Also available in French edition.

**Roads, Construction, Frozen ground mechanics, Frozen ground physics, Frost penetration, Soil freezing, Mathematical models.**

The volume results from a seminar-course organized by the Paterson Centre, Carleton University and by the Ecole Nationale des Ponts et Chaussées, Paris, and held at Ottawa in Oct. 1977. In seventeen chapters several authors deal with various aspects of road construction on freezing soils. Some of the topics include: French research on frost action, laboratory simulation, soil thermal regimes, macro- and micro-mechanisms of freezing at the interface, frost penetration and frost susceptible soils, numerical applications, frost damage prevention.

34-2481

**Initial report on geological materials collected at RISP site J9, 1978-79.** Webb, P.N., comp. RISP technical report 79-1, Lincoln, University of Nebraska, Oct. 1979, 127p., 13 refs.

**Drill core analysis, Bottom sediment, Marine deposits, Ice shelves, Geological surveys, Glacial geology.** Sampling of 58 cores at Ross Ice Shelf Project J9 was undertaken in Dec. of both 1977 and 1978. An analysis of sea floor wave forms suggests that the northward movement of the Ross Ice Shelf in this region might be between 1 and 4 m a day. The lithological, paleontological and stratigraphic core analyses are described. A date of 174 m.y. was obtained from Rb-Sr dating of fine-grained detrital feldspars in a dredge sample of the core upper unit.

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**Susitna River basin resource bibliography; supplement 1979.** Lockhart, D., comp. Alaska Department of Natural Resources, Aug. 1979, 244p. Annotated collection of reports and projects.

**Natural resources, Hydrology, River basins, Soils, Vegetation, Climate, Bibliographies, United States—Alaska—Susitna River.**

34-2483

**Baykal Amur railroad and economic development of the Transbaikal region.** (BAM i osvoenie Zabaikal'ia). Nedeshev, A.A., et al. Novosibirsk, Nauka, 1979, 158p. In Russian. Refs. p.153-158.

**Bybin, F.F., Kotelnikov, A.M. Economic development, Natural resources, Topographic features, Hydrography, Transportation, Taiga, Forestry, Climate, Baykal Amur railroad, Permafrost distribution, USSR—Transbaikal.**

34-2484

**Decomposition of plant litter and cellulose in the tundras of the Taymyr Peninsula.** Parinkina, O.M. Soviet soil science, Nov.-Dec. 1978, 10(6), p.676-684, Translated from Pochvovedenie, No.11, 1978, p.47-55. 18 refs.

**Decomposition, Plant tissues, Tundra, Wood, Cellulose.**

34-2485

**Core drilling through the Ross Ice Shelf (Antarctica) confirmed basal freezing.** Zotikov, I.A., et al. Science, Mar. 28, 1980, 207(4438), p.1463-1465, 13 refs.

**Zagorodnov, V.S., Raikovskii, J.V. Ice shelves, Ice cores, Sea ice, Ice growth, Ice melting, Antarctica—Ross Ice Shelf.**

New techniques that have been used to obtain a continuous ice core through the whole 416-meter thickness of the Ross Ice Shelf at Camp 1-9 have demonstrated that the bottom 6 meters of the ice shelf consists of sea ice. The rate of basal freezing that is forming this ice is estimated by different methods to be 2 centimeters of ice per year. The sea ice is composed of large vertical crystals which form the waffle-like lower boundary of the shelf. A distinct alignment of the crystals throughout the sea ice layer suggests the presence of persistent long-term currents beneath the ice shelf. (Auth.)

34-2486

**Marine seismic refraction data between Wainwright Inlet and Prudhoe Bay, Alaska.** Bee, M., et al. Oregon. State University, Corvallis. School of Oceanography. Technical report, June 1979, No.79-9, 120p. ADA-073 403.

**Johnson, S.H., Chiburis, E.F., McAllister, R.E. Seismic refraction, Tectonics, Marine geology, Cold weather operation, Data processing.**

34-2487

**Possible late Quaternary pingo remnants in central London.** Hutchinson, J.N. Nature, Mar. 20, 1980, 284(5253), p.253-255, 26 refs.

**Quaternary deposits, Pingos, United Kingdom—London.**

- 34-2488**  
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- 34-2489**  
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Snow removal, Equipment.
- 34-2490**  
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- 34-2491**  
Continuous construction activities more needed than ever. (Die Verstetigung der Bautätigkeit ist notwendiger denn je). Kranz, D.G., *Strassen- und Tiefbau*, Dec. 1979, No.12, p.25-26. In German.  
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- 34-2492**  
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Concrete pavements, Bridges, Protection, Plastics, Salting, Chemical ice prevention, Damage, Temperature effects, Concrete strength.
- 34-2493**  
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- 34-2494**  
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- 34-2496**  
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- 34-2497**  
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- 34-2498**  
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- 34-2499**  
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Glacier flow, Ice sheets, Oxygen isotopes, Basal slid-ing, Antarctica—Shirase Glacier.  
On the basis of a glaciological survey carried out by the Japanese Antarctic Research Expedition in Mizuho Plateau, thin-ning of the ice sheet in the observed area is discussed. Vertical profiles of oxygen isotope and ice temperature at Mizuho Sta-tion are explained by ice sheet thinning which commenced 100 years ago. A simple calculation of basal shear stress shows the unstable state of the ice sheet in Mizuho Plateau. (Auth.)
- 34-2500**  
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Watanabe, O., Satow, K., Okuhira, F.  
Snow accumulation, Isotope analysis, Snow stratigra-phy, Oxygen isotopes, Drill core analysis, Antarctica —Mizuho Station.  
Ice-core drilling was carried out around Mizuho Station from 1970 to 1975. Resulting findings on snow accumulation in the area are discussed. Histograms of weight of unit layer for ev-ery 10 m interval and stratigraphic profiles are given. Esti-mates of annual accumulation at various depths and oxygen isotope profiles are also included.
- 34-2501**  
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- 34-2502**  
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- 34-2503**  
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- 34-2505**  
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- 34-2506**  
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- 34-2507**  
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- 34-2509**  
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Snow surveys, Temperature variations, Topographic effects, Switzerland.
- 34-2510**  
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- 34-2511**  
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- 34-2512**  
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34-2517

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34-2518

**Peculiarities of forest-swamp ecosystems in West Siberia.** (Osobennosti leso-bolotnykh ekosistem Zapadnoi Sibiri).

Glebov, F.Z., ed. Krasnoyarsk, 1978, 159p. In Russian. For individual papers see 34-2519 through 34-2524. Refs. passim.

**Taiga, Landscape types, Ecosystems, Paludification, Peat, Land reclamation, Soil chemistry, Aerial surveys, Mapping.**

34-2519

**Statistical analysis of the relation between paludification and hydrometeorological characteristics of river basins in the central and southern taiga of West Siberia.** (Statisticheskii analiz svyazi zabolochennosti s gidrometeorologicheskimi kharakteristikami rechnykh bassainov srednei iuzhnoi taigi Zapadnoi Sibiri). Uskova, I.M., et al. Osobennosti leso-bolotnykh ekosistem Zapadnoi Sibiri (Peculiarities of forest-swamp ecosystems in West Siberia) edited by F.Z. Glebov. Krasnoyarsk, 1978, p.14-59. In Russian. 7 refs. Dashkovskaya, I.S.

**Taiga, Paludification, Ecosystems, Landscape types.**

34-2520

**Studying the origin and structure of forest-swamp complexes.** (Opyt izucheniya struktury i genezisa leso-bolotnykh kompleksov).

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**Taiga, Landscape types, Ecosystems, Paludification, Swamps, Classifications, Aerial surveys, Mapping.**

34-2521

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**Taiga, Swamps, Landscape types, Hydrology, Climatology.**

34-2522

**Ecologic effect on the formation of conifer crowns and combined offshoots in drained bogs.** (Ekologicheskoe predposylki formirovaniya siltepticheskikh pobegov i krony u khyotnykh na osushennykh bolotakh).

Efremov, S.P., Osobennosti leso-bolotnykh ekosistem Zapadnoi Sibiri (Peculiarities of forest-swamp ecosystems in West Siberia) edited by F.Z. Glebov. Krasnoyarsk, 1978, p.91-111.

**Taiga, Plant ecology, Plant physiology, Paludification.**

34-2523

**Regression analysis of fermentation in drained peat soils.** (Regressionnyi analiz fermentativnoi aktivnosti osushennykh torfiannykh pochvy).

Efremov, I.I., et al. Osobennosti leso-bolotnykh ekosistem Zapadnoi Sibiri (Peculiarities of forest-swamp ecosystems in West Siberia) edited by F.Z. Glebov. Krasnoyarsk, 1978, p.111-131. In Russian. 14 refs.

Efremov, S.P., Voronkov, P.T.

**Taiga, Swamps, Peat, Soil analysis.**

34-2524

**Effects of swamp drainage, afforestation and nutrients on the dynamics of chemical composition of soil solutions.** (Vlianie osusheniya, trofnosti i oblesennosti bolot na dinamiku khimicheskogo sostava pochvennykh rastvorov).

Melent'eva, N.V., Osobennosti leso-bolotnykh ekosistem Zapadnoi Sibiri (Peculiarities of forest-swamp ecosystems in West Siberia) edited by F.Z. Glebov. Krasnoyarsk, 1978, p.131-135. In Russian. 15 refs.

**Swamps, Forest land, Nutrient cycle, Drainage, Soil water, Water chemistry.**

34-2525

**Osmotic method for determining rock and aggregate suction characteristics with applications to frost heave studies.**

Jones, R.H., et al. *Engineering geology*, 1978, 11(3), p.245-252, 24 refs.

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**Soil pressure, Soil water, Frost heave.**

34-2526

**Dielectric properties of heavy ice Ih (D2O ice).**

Kawada, S. *Physical Society of Japan Journal*, Dec 1979, 47(6), p.1850-1856, 24 refs.

**Deuterium oxide ice, Ice electrical properties.**

34-2527

**Winter regime of the North Water.**

Dunbar, M. *Royal Society of Canada Transactions*, 1973, Ser. 4, Vol.11, p.275-281, 10 refs.

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**Sea ice distribution, Polynyas, Seasonal variations.**

34-2528

**Analysis of plastic shock waves in snow.**

Brown, R.L. *U.S. Army Cold Regions Research and Engineering Laboratory*, 1979, CR 79-29, 14p. ADA-080 051, 12 refs.

**Wave propagation, Snow deformation, Shock waves, Loads (forces), Analysis (mathematics).**

An analytical study of the propagation of shock waves in snow was carried out to evaluate the response of medium density snow to high rates of loading. One solution was developed for steady shock waves; this resulted in calculation of pressure jump, density jump and stress wave speed. Correlation with available experimental data was found to be good. Nonsteady shock waves were also considered in order to evaluate wave attenuation rates in snow. Very few data were available to compare with the analytical results, so no definite conclusions on the part of the study could be made. The results show, however, that shock waves that produce plastic deformation attenuate at extremely high rates and that differences in pressure between two waves are quickly eliminated within a short distance. Calculations were also made to evaluate the effect of wave frequency on attenuation rates. The results show that, for plastic waves, frequency is not a predominant factor for determining attenuation rates. (Auth.)

34-2529

**Regularities governing natural phenomena and their forecasting.** (Zakonomernosti i prognozirovaniye prirodnykh yavleniy).

Agarkov, S.I., ed. Moscow, Nauka, 1980, 271p. (Pertinent p.87-162). In Russian with abridged English table of contents enclosed. Refs. p.256-269.

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**Mountains, River basins, Valleys, Slope processes, Mudflows, Permafrost distribution, Permafrost hydrology, Naleds, Taliks, Earthquakes, Forecasting.**

34-2530

**Hydrothermal melioration of frozen rocks in the Northeastern USSR.** (Vodno-teplovaia melioratsiya merzlykh porod na Severo-Vostoke SSSR).

Perlshtein, G.Z., Novosibirsk, Nauka, 1979, 304p. In Russian with English table of contents enclosed. Refs. p.276-290.

**Frozen rocks, Artificial melting, Active layer, Soil freezing, Frost protection, Frozen fines, Permafrost hydrology, Permafrost control, Placer mining.**

34-2531

**Collected changes and supplements to the 1st, 2nd and 3rd parts of Construction Norms and Regulations (SNiP) and Instructions (SN) introduced in 1978.** (Sbornik izmenenii i dopolnenii k I, II i III chastiam stroitel'nykh norm i pravil (SNiP) i instruktsiyam (SN) vnesennykh v 1978 g.).

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Zelentsova, M.I., ed.

**Building codes, Standards.**

34-2532

**Pressing environmental protection problems in the Far East.** (Aktual'nye voprosy okhrany prirody na Dal'nem Vostoke).

Konovaleiko, V.G., ed. Vladivostok, 1978, 179p. In Russian. For selected papers see 34-2533 through 34-2537. Refs. passim.

Smirnova, O.A., ed.

**Environmental protection, Permafrost beneath structures, Maps, Soil freezing, Taiga, Soil erosion, Water erosion, Landscape types, Gullies, Human factors, Baykal Amur railroad, USSR—Far East.**

34-2533

**Some aspects of environmental protection in the Far Eastern USSR.** (Nekotoryye aspekty okhrany prirody Dal'nego Vostoka SSSR).

Konovaleiko, V.G., Aktual'nye voprosy okhrany prirody na Dal'nem Vostoke (Pressing environmental protection problems in the Far East) edited by V.G. Konovaleiko and O.A. Smirnova. Vladivostok, 1978, p.3-6. In Russian.

**Environmental protection, Landscape types, Taiga, Human factors, Baykal Amur railroad, USSR—Far East.**

34-2534

**Protection and use of biologic resources in the Baykal Amur railroad construction zone.** (Ob okhrane i ispol'zovanii biologicheskikh resursov v zone stroitel'stva Baikalo-Amurskoi magistrali).

Man'ko, H.I., Aktual'nye voprosy okhrany prirody na Dal'nem Vostoke (Pressing environmental protection problems in the Far East) edited by V.G. Konovaleiko and O.A. Smirnova. Vladivostok, 1978, p.7-9. In Russian. 2 refs.

**Construction, Taiga, Forestry, Human factors, Permafrost beneath structures, Environmental protection, Baykal Amur railroad.**

**Seasonal freezing of soil and ground in the southeastern Amur area.** (Sezonnoe promerzaniye pochvy i grunta yugo-vostochnoi chasti Amurskoi oblasti).

Baulo, V.D., et al. Aktual'nye voprosy okhrany prirody na Dal'nem Vostoke (Pressing environmental protection problems in the Far East) edited by V.G. Konovaleiko and O.A. Smirnova. Vladivostok, 1978, p.100-107. In Russian. 5 refs.

**Soil freezing, Frost penetration, Seasonal freeze thaw, Snow cover effect, Meteorological factors, USSR—Amur River.**

34-2535

**Intensity of gully formation in the intermontane troughs of southern Srednee Priamur'e.** (Intensivnost' ovrageobrazovaniya v mezhgornnykh vpadinakh iuga srednego Priamur'ia).

Miskina, L.V., Aktual'nye voprosy okhrany prirody na Dal'nem Vostoke (Pressing environmental protection problems in the Far East) edited by V.G. Konovaleiko and O.A. Smirnova. Vladivostok, 1978, p.123-132. In Russian. 5 refs.

**Mountain soils, Slope protection, Water erosion, Gullies, Countermeasures, Vegetation factors.**

34-2536

**Mapping the use of restockable natural resources for geographic forecasting.** (Kartografirovaniye ispol'zovaniya vozobnovimykh prirodnykh resursov pri geograficheskoi prognozirovaniy).

Vorob'eva, T.A., et al. Aktual'nye voprosy okhrany prirody na Dal'nem Vostoke (Pressing environmental protection problems in the Far East) edited by V.G. Konovaleiko and O.A. Smirnova. Vladivostok, 1978, p.132-139. In Russian. 11 refs.

**Mountain soils, Slope protection, Water erosion, Gullies, Countermeasures, Vegetation factors.**

34-2537

**Mapping the use of restockable natural resources for geographic forecasting.** (Kartografirovaniye ispol'zovaniya vozobnovimykh prirodnykh resursov pri geograficheskoi prognozirovaniy).

Vorob'eva, T.A., et al. Aktual'nye voprosy okhrany prirody na Dal'nem Vostoke (Pressing environmental protection problems in the Far East) edited by V.G. Konovaleiko and O.A. Smirnova. Vladivostok, 1978, p.132-139. In Russian. 11 refs.

**Mountain soils, Slope protection, Water erosion, Gullies, Countermeasures, Vegetation factors.**

34-2538

**Recrystallization and electrical behaviour of glacier ice.**

Reynolds, J.M., et al. *Nature*, Jan. 3, 1980, 283(5742), p.63-64, 26 refs.

Paron, J.G.

**Glacier ice, Ice shelves, Electrical resistivity, Ice electrical properties, Recrystallization, Impurities, Antarctica—George VI Ice Shelf.**

34-2539

**Electrical d.c. resistivity measurements made on George VI Ice Shelf have established the polar nature of antarctic ice despite saturation by melt-water from surface melt-lakes. Previously it has been suggested that different impurity concentrations are responsible for the extremes in resistivity (a factor of 1,000) between temperate ice (essentially at its pressure melting point) and polar ice (well below its pressure melting point). However, the evidence suggests that impurity levels are similar despite the leaching of contaminants by free water in temperate glaciers, a process which is absent in true polar glaciers. This implies that, although impurities can significantly alter the electrical behavior of glacier ice, there is a more fundamental mechanism at work. It is suggested that this process is one of recrystallization.** (Auth.)



34-2539

Contributions from the Shinjo Branch, No.1 (1969-1979).

Japan. National Research Center for Disaster Prevention, 1979. Var.p., In Japanese some with English summaries. For selected articles see: 33-552, 33-3690, 33-2815, 33-175, 33-550, 33-551, 33-555, 33-4277, 33-547, 33-548, 33-2659, 33-3691 and 34-2539 through 34-2557.

Snowmelt, Meltwater, Snow cover structure, Ground water, Artificial snow, Japan—Shinjo.

34-2540

New apparatus to produce fresh snow.

Nakamura, H., Japan. National Research Center for Disaster Prevention. Report, 1978, No.19, p.229-237. In Japanese with English summary. 1 ref., Reprinted in Japan, National Research Center for Disaster prevention, Shinjo Branch, Contributions No.1, (1969-1979).

Snow manufacturing, Artificial snow, Snow crystal growth, Hoarfrost, Equipment.

34-2541

Internal friction of snow and ice low frequency.

Nakamura, T., et al, International Conference on Internal Friction and Ultrasonic Attenuation in Solids, 6th, Tokyo, 1977. Proceedings, (Tokyo, 1977), p.285-289, 8 refs., Reprinted in Japan, National Research Center for Disaster prevention, Shinjo Branch, Contributions No.1, (1969-1979).

Internal friction, Ice friction, Snow physics, Snow density, Ice density, Plastic deformation.

34-2542

Mechanical properties of impure ice single crystals at high temperatures.

Nakamura, T., Japan. National Research Center for Disaster Prevention. Report, 1978, No.20, p.293-324. In Japanese with English summary. 25 refs. For a short version see 33-376., Reprinted in Japan, National Research Center for Disaster prevention, Shinjo Branch, Contributions No.1, (1969-1979).

Ice crystal structure, Ice mechanics, Doped ice, Stress strain diagrams, Strain tests, Tensile properties, Ice deformation, Temperature effects, Loads (forces).

34-2543

Comparison on the non-slip quality among three different types on langlauf ski-plates.

Nakamura, T., Preliminary report for the 11th Interski Congress at Zao, Japan, 1979, p.1-6. In Japanese with English captions. 1 ref., Reprinted in Japan, National Research Center for Disaster prevention, Shinjo Branch, Contributions No.1, (1969-1979).

Wood snow friction, Snow strength, Bearing strength.

34-2544

Research of ground water resources to melt snow, No.1.

Yuhara, K., et al, Report of scientific study of the Ministry of Education, Japan. Study for the development of ground water resources, (Tokyo, 1972), p.7-10. In Japanese., Reprinted in Japan, National Research Center for Disaster prevention, Shinjo Branch, Contributions No.1, (1969-1979).

Higashiura, M.  
Water reserves, Snowmelt, Ground water.

34-2545

Research of ground water resources to melt snow, No.2.

Higashiura, M., Report of scientific study of the Ministry of Education, Japan. Study for the development of ground water resources, (Tokyo, 1972), p.16-23. In Japanese., Reprinted in Japan, National Research Center for Disaster prevention, Shinjo Branch, Contributions No.1, (1969-1979).

Water reserves, Snowmelt, Ground water.

34-2546

Water balance in the Shinjo basin.

Higashiura, M., Geographical review of Japan, 1975, 48(7), p.490-496. In Japanese with English summary. 6 refs., Reprinted in Japan, National Research Center for Disaster prevention, Shinjo Branch, Contributions No.1, (1969-1979).

Water balance, Snowmelt, Runoff, Snow accumulation, Climatic factors.

34-2547

Climatological water balance in the Shinjo basin.

Higashiura, M., Japan. National Research Center for Disaster Prevention. Report, 1976, No.14, p.95-109. In Japanese with English summary. 7 refs., Reprinted in Japan, National Research Center for Disaster prevention, Shinjo Branch, Contributions No.1, (1969-1979).

Water balance, Snowmelt, Runoff, Meltwater, Snowfall, Evaporation, Precipitation (meteorology), Climatic factors.

34-2548

Ground water in the Shinjo basin.

Higashiura, M., Nihon no mizushushi (Water balance in Japan). Edited by M. Ichikawa and I. Kayane, Tokyo, Kokon-shoin, 1978, p.165-174. In Japanese. 11 refs., Reprinted in Japan, National Research Center for Disaster prevention, Shinjo Branch, Contributions No.1, (1969-1979).

Ground water, Meltwater, Water balance.

34-2549

Experimental study on the most reasonable amount of ground water to be sprinkled for melting the freshly fallen snow on the roads.

Nakamura, H., Japan. National Research Center for Disaster Prevention. Report, 1977, No.18, p.117-147. In Japanese with English summary. 8 refs., Reprinted in Japan, National Research Center for Disaster prevention, Shinjo Branch, Contributions No.1, (1969-1979).

Snow removal, Artificial melting, Snow melting, Roads, Ground water, Water temperature, Meteorological factors.

34-2550

Snow melting by sprinkling ground water.

Higashiura, M., Water temperature research, 1972, 16(4), p.2834-2841. In Japanese. 10 refs., Reprinted in Japan, National Research Center for Disaster prevention, Shinjo Branch, Contributions No.1, (1969-1979).

Snow removal, Artificial melting, Snow melting, Ground water, Water temperature.

34-2551

Snow melting on roofs by sprinkling ground water.

Higashiura, M., Japan. National Research Center for Disaster Prevention. Report, 1977, No.17, p.215-225. In English with Japanese summary. 10 refs., Reprinted in Japan, National Research Center for Disaster prevention, Shinjo Branch, Contributions No.1, (1969-1979).

Snow melting, Snow removal, Artificial melting, Roofs, Ground water.

34-2552

Basic study of snow melting on roofs.

Higashiura, M., Report of scientific study of the Ministry of Education, Japan. Basic study for snow disaster prevention, Fukushima University, 1976, p.17-19. In Japanese., Reprinted in Japan, National Research Center for Disaster prevention, Shinjo Branch, Contributions No.1, (1969-1979).

Snow melting, Artificial melting, Roofs, Snow removal.

34-2553

On the present situation of snow removal and melting from greenhouses.

Higashiura, M., Shisetsu Engei Yoran, Tokyo, 1975, p.131-140. In Japanese., Reprinted in Japan, National Research Center for Disaster prevention, Shinjo Branch, Contributions No.1, (1969-1979).

Snow removal, Snow melting, Artificial melting, Roofs.

34-2554

Profile observations of snow cover on level land in Shinjo City during the winter of 1973-1974.

Higashiura, M., et al, Japan. National Research Center for Disaster Prevention. Research notes, 1975, No.13, p.37-54. In Japanese. 4 refs., Reprinted in Japan, National Research Center for Disaster prevention, Shinjo Branch, Contributions No.1, (1969-1979).

Abe, O.  
Snow cover structure, Profiles, Temperature effects, Japan—Shinjo.

34-2555

Observation on vertical profiles of physical properties of snow cover on the ground surface at Shinjo City during the winter of 1974 to 1975.

Higashiura, M., et al, Review of Research for Disaster Prevention, 1978, No.33, p.1-26. In Japanese with English summary. 1 ref., Reprinted in Japan, National Research Center for Disaster prevention, Shinjo Branch, Contributions No.1, (1969-1979).

Abe, O., Nakamura, T., Nakamura, H.  
Snow cover structure, Profiles, Snow physics, Japan—Shinjo City.

34-2556

Destructive avalanches in Japan (No.1)—of Yamagata-ken (1929-1975), Niigata-ken (1945-1974) and a whole country (1927-1976).

Japan. National Research Center for Disaster Prevention, Review of Research for Disaster Prevention, 1977, No.27, p.1-92. In Japanese with English summary. 5 refs., Reprinted in Japan, National Research Center for Disaster prevention, Shinjo Branch, Contributions No.1, (1969-1979).

Avalanche formation, Avalanche erosion, Snow depth, Damage, Statistical analysis.

34-2557

Observational data of ground water in the Shinjo basin (1)—Shallow ground water level and water temperature (1970-1975).

Higashiura, M., et al, Review of Research for Disaster Prevention, 1979, No.37, p.1-95. In Japanese with English summary. 4 refs., Reprinted in Japan, National Research Center for Disaster prevention, Shinjo Branch, Contributions No.1, (1969-1979).

Abe, O.  
Snow melting, Meltwater, Ground water, Water temperature, Water level, Seasonal variations, Statistical analysis.

34-2558

Frost action problem—an overview of research to provide solutions.

DiMillo, A.F., et al, Public roads, Mar. 1980, 43(4), p.149-158, 6 refs.

Fohs, D.G.  
Research projects, Frost action, Thermal insulation, Roads, Frost resistance.

34-2559

Winters of the world: Earth under ice ages.

John, B.S., ed, New York, Wiley and Sons, 1979, 256p., Bibliography p.250-253. For pertinent paper see 34-2560 or E-23078.

Glacial geology, Ice age theory, Geomorphology, Climatic changes, Glaciation.

The book deals with the global importance of ice and basic geological processes; causes of ice ages; effects of large-scale glaciation on environment; and environments during specific historical ice ages from Precambrian through Quaternary. It is intended to give insight toward understanding the processes and effects of the present ice age in order to interpret correctly earlier ice ages and to predict global climates over the few centuries. Antarctica is mentioned sporadically in the text and more frequently in photographs, charts, tables, and graphs.

34-2560

Glaciers and environment.

Derbyshire, E., Winters of the world: Earth under ice ages, edited by B.S. John, New York, Wiley and Sons, 1979, p.58-106.

Glacial geology, Glacier ice, Glacial deposits, Sea ice, Icebergs.

The author describes how glaciers form, shape, and change the environments in which they operate, both at and beneath the surface, including the plant and animal life of the habitats. Rock break-up due to glacier pressure, quiet and turbulent subglacial streams, glacial deposits and unique surface features, ground ice, sea ice, and sea level changes, all as they affect and are affected by glacial and interglacial periods, are described.

34-2561

SA ice ship tribute to designers, builders. South African shipping news and fishing industry review, May 1978, 33(5), p.10-17.

Ships, Ice navigation, Logistics.

The South African vessel, the S.A. Agulhas, an antarctic survey/supply ship of British design and Japanese construction, is described. Some construction details are given and various capabilities, facilities, and equipment are noted: ice navigation, cargo handling and stowing, helicopters, scientific activities, crew and passenger accommodation, and power plants.

34-2562

Winter exploration and drilling.

Sigurdson, T., comp., Oilweek, Mar.10, 1980, 31(5), p.12-50.

Oil recovery, Cold weather operation, Offshore drilling, Artificial islands, Economic development, Canada.

34-2563

Submarine fluting and end moraine features in the fresh water reservoir Uusikaupunki, on the SW coast of Finland. (Yhdennäisiä vakouma- ja reunamuodostumapuitteita Uudenkaupungin makeavesaltaassa Suomen Joutsenannkollaj.)  
Ström, O. *Terra*, 1979, 91(4), p.231-234. In Finnish with English summary. 16 refs.  
Moraines, Marine geology.

34-2564

Parameterization of sub-grid scale processes. WMO-ICSI Joint Organizing Committee, *Global Atmospheric Research Programme - GARP publications series*, Oct. 1972, No.8, 120p. (Pertinent p.97-101). In English with French, Russian, and Spanish summaries. 7 refs.  
Snow cover, Sea ice, Analysis (mathematics).

34-2565

Sea ice and ice sheets and their role in climatic variations. Untersteiner, N., *Global Atmospheric Research Programme - GARP publications series*, Apr. 1975, No.16, p.206-224, 68 refs.  
Sea ice, Ice sheets, Climatic changes.

The most important variations of the atmosphere-cryosphere-hydrosphere system on time scales up to 10,000 years are the annual cycle and the prolonged glaciations associated with secular trends of the sea ice and snow cover. Theories of sea ice dynamics are still in an early stage, and concerted efforts will be needed to improve both theory and the world-wide observational monitoring of sea ice by satellite-borne, all-weather, remote sensing methods. The continental ice sheets are important features influencing the present-day general circulation of the atmosphere and the oceans (e.g. formation of bottom water around Antarctica). In terms of climatic variations they are comparatively "inert", but they provide useful paleo-climatic information. Major outbreaks (surges) of antarctic ice would have profound consequences for world climate. The search for geomorphic evidence of such events, and efforts to improve the theory of ice sheet dynamics, should be continued. (Auth.)

34-2566

Ways of improving the construction of power supply objects for the Baykal Amur railroad. (Nekotorye puti sovershenstvovaniia stroitel'stva ob'ektov elektrosnabzheniia BAMaj.)  
Naranov, V.G., et al., *Energeticheskoe stroitel'stvo*, Feb. 1980, No.2, p.43-45. In Russian.  
Gorskii, M.P.  
Electric power, Buildings, Power lines, Earthwork, Foundations, Permafrost beneath structures, Baykal Amur railroad.

34-2567

Design and construction of power supply lines for the Baykal Amur railroad area. (Proektirovanie i stroitel'stvo liniy elektropredachi dlia elektrosnabzheniia BAMaj.)  
Shimkovich, V.G., *Energeticheskoe stroitel'stvo*, Feb. 1980, No.2, p.45-58. In Russian.  
Electric power, Power line supports, Foundations, Permafrost beneath structures, Baykal Amur railroad.

34-2568

Design and construction of electric substations in the western section of the Baykal Amur railroad. (Nekotorye osobennosti proektirovaniia i stroitel'stva podstantsii na zapadnom uchastke BAMaj.)  
Gromov, V.V., et al., *Energeticheskoe stroitel'stvo*, Feb. 1980, No.2, p.49-51. In Russian.  
Dorofeev, V.T.  
Electric power, Concrete structures, Buildings, Permafrost beneath structures, Baykal Amur railroad.

34-2569

Design and construction of substations and maintenance depots for the central Baykal Amur railroad area. (Proektirovanie i stroitel'stvo podstantsii i RPB v tsentral'nykh ratonakh BAMaj.)  
Filatov, A.M., *Energeticheskoe stroitel'stvo*, Feb. 1980, No.2, p.51-53. In Russian. 3 refs.  
Electric power, Foundations, Permafrost beneath structures, Frost heave, Baykal Amur railroad.

34-2570

Tynda-Prizelskaya 220 kw overhead line crossing the Zeya reservoir. (Perekhod VL 220 kV Tynda-Prizelskaya cherez vodokhranilishe Zelskoi GES.)  
Kirillova, G.G., et al., *Energeticheskoe stroitel'stvo*, Feb. 1980, No.2, p.53-55. In Russian.  
Volkov, A.N.  
Power lines, River crossings, Supports, Foundations, Permafrost beneath structures.

34-2571

Influence of preparation, storage and filling conditions on physico-mechanical properties of ground. (Vlianie uslovii zagotovki, khraneniia i ukladki gruntov na ikh fiziko-mekhanicheskie kharakteristiki.)  
Ioseva, S.G., et al., *Energeticheskoe stroitel'stvo*, Feb. 1980, No.2, p.60-62. In Russian.  
Kadkina, E.I.  
Earth dams, Earth fills, Cold weather construction.

34-2572

Preparing the earth for filling the watertight parts of dams in the Far North. (Podgotovka gruntov k ukladke v protivofil'tsionnye ustroistva plotin na Krai-nem Severe.)  
Rasskazov, I.N., et al., *Energeticheskoe stroitel'stvo*, Feb. 1980, No.2, p.62-65. In Russian. 3 refs.  
Pravdivets, I.P., Myznikov, I.U.  
Hydraulic structures, Earth dams, Earth fills, Permafrost beneath structures, Cold weather construction.

34-2573

Improving the organization of construction of overhead lines and substations in the North. (Sovershenstvovanie organizatsii stroitel'nogo proizvodstva pri sooruzhenii VL i podstantsii v severnoi zone.)  
Demsov, G.A., et al., *Energeticheskoe stroitel'stvo*, Jan. 1980, No.1, p.31-38. In Russian. 4 refs.  
Elenbogen, G.N.  
Power lines, Foundations, Construction materials, Transportation, Permafrost beneath structures.

34-2574

Modern design of power line support foundations for Tyumen'. (Vnedrenie progressivnykh konstruktivnykh fundamentov VL v Tyumenskoi oblasti.)  
Kirtbana, I.A., et al., *Energeticheskoe stroitel'stvo*, Jan. 1980, No.1, p.38-44. In Russian. 2 refs.  
Power line supports, Foundations, Permafrost beneath structures, Thermopiles, Permafrost control.

34-2575

Optimal structural design solutions for overhead lines in the North. (Vybór optimal'nykh konstruktivnykh reshenii VL dlia ratonov Krai-nego Severa.)  
Gablina, I.U.A., et al., *Energeticheskoe stroitel'stvo*, Jan. 1980, No.1, p.44-48. In Russian.  
Kurnosov, A.I., Shvetsova, N.I.  
Power line supports, Steel structures, Foundations, Permafrost beneath structures.

34-2576

Structural design of steel power line supports for northern regions. (Ratsional'nye konstruktivnykh stal'nykh opor VL dlia severnykh ratonov strany.)  
Astafeev, A.M., et al., *Energeticheskoe stroitel'stvo*, Jan. 1980, No.1, p.49-52. In Russian.  
Novgorodtsev, B.P.  
Steel structures, Power line supports, Foundations, Permafrost beneath structures.

34-2577

Construction of 220 kw substations under northern conditions. (Sooruzhenie podstantsii 220 kV v severnykh usloviakh.)  
Kolbin, S.A., et al., *Energeticheskoe stroitel'stvo*, Jan. 1980, No.1, p.52-54. In Russian.  
Parkhomenko, A.M.  
Electric power, Permafrost beneath structures.

34-2578

Significance of the Kislogubsk tidal power plant for hydraulic construction and power engineering. (Znachenie Kislogubskoi PES dlia gidrotekhnicheskogo i energeticheskogo stroitel'stva.)  
Bernshtein, L.B., et al., *Energeticheskoe stroitel'stvo*, Jan. 1980, No.1, p.64-67. In Russian. 10 refs.  
Usachev, I.N.  
Dams, Hydraulic structures, Concrete structures, Frost resistance, Tidal power plants.

34-2579

Building new types of concrete dams under northern conditions. (Vozvedenie novykh tipov betonnykh plotin v severnykh usloviakh.)  
Kudoiarov, L.I., *Energeticheskoe stroitel'stvo*, Jan. 1980, No.1, p.67-69. In Russian. 2 refs.  
Hydraulic structures, Dams, Concrete structures, Frost resistance, Cold weather construction, Permafrost beneath structures.

34-2580

Imaging radar observations of frozen Arctic lakes. Elachi, C., et al., *Remote sensing of environment*, 1976, 5(3), MP 1284, p.169-175, 14 refs.  
Bryan, M.L., Weeks, W.F.  
Radar echoes, Frozen lakes, Backscattering, Remote sensing, Bubbles, Ice water interface, Ice solid interface.  
L-band radar images of a number of ice-covered lakes located approx 48 km northwest of Bethel, Alaska, show large differ-

ences in radar backscatter with lakes showing homogeneous low returns, homogeneous high returns and at low returns around the lake borders and high returns from the central areas. The patterns of the returns suggest that a low return indicates that the lake is frozen completely to its bottom, while a high return indicates the presence of fresh water between the ice cover and the lake bed. This interpretation is in good agreement with the limited information available on lake depths in the study area and recent X-band radar observations of North Slope lakes by Neilman, Weeks and Campbell, who suggested such an interpretation. These effects are, however, more striking in the L-band than in the X-band imagery. This can be explained by the fact that volume inhomogeneities, such as air bubbles, will cause more scattering and conductivity losses and thus more attenuation at the shorter wavelengths (X-band, 4 cm).

34-2581

Boreal ecology. Pruitt, W.O., Jr., Institute of Biology's Studies in Biology, No.91, London, Edward Arnold, 1978, 73p., Refs. p.68-73.  
Ecology, Tundra, Taiga, Permafrost, Vegetation patterns, Ecosystems, Polar regions, Animals, Climate.

34-2582

Construction equipment for the Baykal Amur railroad. (Mekhanizatsiia stroitel'nykh rabot na Baikalo-Amurskoi magistrali.)  
Pohakov, V.I., et al., *Mekhanizatsiia stroitel'stva*, Dec. 1979, No.12, p.2-4. In Russian.  
Kolesnichenko, V.V., Berkut, I.A.  
Construction equipment, Earthwork, Baykal Amur railroad, Frozen ground.

34-2583

New machines for the construction and maintenance of highways. (Novye mashiny dlia stroitel'stva i ekspluatatsii avtodorog.)  
Volkova, A.E., *Mekhanizatsiia stroitel'stva*, Dec. 1979, No.12, p.18-21. In Russian.  
Roads, Winter maintenance, Snow removal, Earthwork, Frozen ground.

34-2584

New equipment at the construction sites of the Ministry of Construction Planning of Industrial Establishments, USSR. (Novye mashiny na stroikakh Minpromstroia SSSR.)  
Konstantinov, N.F., *Mekhanizatsiia stroitel'stva*, Jan. 1980, No.1, p.17-21. In Russian.  
Construction equipment, Earthwork, Cold weather construction.

34-2585

Assembly for unloading frozen construction materials, PR-188. (Kompleks mashin dlia vygruzki smerzhshikhsia stroitel'nykh materialov PR-188.)  
Volkova, A.E., *Mekhanizatsiia stroitel'stva*, Jan. 1980, No.1, p.30. In Russian.  
Frozen cargo, Unloading, Construction materials, Transportation.

34-2586

Sectional capping for columnar bridge piers of the Baykal Amur railroad. (Sbornye nasadki dlia stolbchatykh opor mostov BAMaj.)  
Baliuchik, E.A., et al., *Transportnoe stroitel'stvo*, Mar. 1980, No.3, p.10-12. In Russian.  
Pol'evko, V.P., Brusilovskii, V.B., Chakhlov, V.S.  
Concrete structures, Bridges, Piers.

34-2587

Winter concreting in the Baykal Amur railroad area. (Tekhnologiya betonnykh rabot pri nizkikh temperaturakh na BAMaj.)  
Bronshtein, G.L., et al., *Transportnoe stroitel'stvo*, Mar. 1980, No.3, p.20-21. In Russian.  
Trushkin, V.M.

Concrete structures, Winter concreting, Concrete admixtures, Concrete strength, Baykal Amur railroad.

34-2588

Surface-active admixtures for concretes of airport pavement plates. (Poverkhnostno aktivnye dobavki dlia betona plit aerodromnykh pokrytiy.)  
Safianova, N.E., et al., *Transportnoe stroitel'stvo*, Mar. 1980, No.3, p.23-24. In Russian.  
Kolokol'nikova, E.I., Fridman, V.V., Koroleva, O.E.  
Airports, Pavements, Prefabrication, Plates, Concrete admixtures, Frost resistance, Concrete strength.

34-2589

Lightweight enclosures for use in the Urals and Siberia. (Primenenie legkikh ogradzhdaiushchikh konstruktivnykh usloviakh Urala i Sibiri.)  
Pavlov, V.P., et al., *Energeticheskoe stroitel'stvo*, Dec. 1979, No.12, p.2-5. In Russian.  
Stepanov, V.I., Novikov, V.G.  
Concrete structures, Prefabrication, Thermal insulation, Panels, Walls, Lightweight concretes.

- 34-2590**  
Operation of electric all terrain vehicles on balloon tires. [Eksploatacia elektrovzdekhodov na pnevmotakakh]. Beliaev, L.V., *Energeticheskoe stroitel'stvo*, Dec. 1979, No. 12, p.37-39, In Russian.
- 34-2591**  
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- 34-2671**  
Crystal alignments in the fast ice of Arctic Alaska. Weeks, W.F., et al., *Journal of geophysical research*, Feb. 20, 1980, 85(C2), MP 1277, p.1137-1146. For this paper in another form see 34-1379 (CR 79-22, ADA-077 188) 8 refs. Gow, A.J. Sea ice, Ice physics, Ice crystal structure, Ocean currents. Field observations at 60 sites located in the fast or near-fast ice along a 1200-km stretch of the north coast of Alaska between the Barrow Sound and Barrow Island have shown that 95% of the ice samples exhibit striking c-axis alignments within the horizontal plane. In all cases the degree of preferred orientation increased with depth in the ice. Representative standard deviations around a mean direction in the horizontal plane are commonly less than 10 deg for samples collected near the bottom of the ice. The general patterns of the alignments support the correlation between the preferred c-axis direction and the current direction at the ice-water interface suggested by Weeks and Gow (1978). A comparison between c-axis alignments and instantaneous current measurements made at 42 locations shows that the most frequent current direction coincides with mean c-axis direction. The c-axis alignments are believed to be the result of geometric selection, with the most favored orientation being that in which the current flows normal to the (0001) plates of ice that comprise the dendritic sea ice-seawater interface.
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Traveling wave solutions of saturated-unsaturated flow through porous media. Nakano, Y., *Water resources research*, Feb. 16, 1980, 16(1), MP 1278, p.117-122, 9 refs. Wave propagation, Water flow. Traveling wave solutions to the problem of saturated-unsaturated flow of water through a uniform porous medium are derived, and the regularity properties of the solutions are studied. It is found that a singularity occurs in the higher-order derivatives of flux with respect to the space coordinate in the solutions at water tables and that the water tables can be generally interpreted as propagating acceleration waves of the  $n$ th order, where  $n$  is a positive integer.
- 34-2673**  
Pilot scale study of overland flow land treatment in cold climates. Jenkins, T.F., et al., *Progress in water technology*, 1979, 11(4-5), MP 1279, p.207-214, 11 refs. Martel, C.J. Waste treatment, Water chemistry, Irrigation, Cold weather tests. Primary and secondary wastewaters were applied to separate sections of an overland flow site. The dimensions of each section were 3 m in width by 30 m in length and the system was graded to a five percent slope. The site was planted with orchard grass and tall fescue. A one-year acclimation period was allowed to obtain a good cover. Wastewater was applied to the site for one month before onset of the study to establish a high level of microbial activity. Applied wastewater as well as surface and subsurface flows were monitored for NO<sub>3</sub>·NH<sub>4</sub>, TKN, BOD, suspended solids, pH, conductivity, and total phosphorus. The results indicate excellent warm weather performance for removal of oxygen demanding substances, suspended matter and nitrogen. Treatment efficiency of suspended solids remained high throughout the winter while treatment of BOD declined to unacceptable levels at soil temperatures below 4°C. Nitrogen treatment declined rapidly below 14°C. The form of nitrogen applied to overland flow was found to affect performance with nitrate being the less desirable form. Phosphorus treatment by overland flow was found to be about 80% in the summer months, declining to nil during the winter.
- 34-2674**  
Low-frequency surface impedance measurements at some glacial areas in the United States. Arcone, S.A., et al., *Radio science*, Jan.-Feb. 1980, 15(1), MP 1280, p.1-9, 14 refs. Delaney, A.J. Radio waves, Wave propagation, Radio communication. Measurements of apparent resistivity and phase derived from the complex surface impedance of radio waves propagating in the ground wave mode at frequencies in the radio navigational aid band (between 257 and 382 kHz) are presented. Areas encompassing between 400 and 800 sq km that covered a variety of glacial sediments, land forms, and some crystalline bedrock types were surveyed. The degree of dispersion found in resistivity values affects the dispersion in grain size, while the average resistivity increases with mean grain size. Dielectric properties are suggested as one cause of the low phases observed over crystalline bedrock. The combination of apparent resistivity and phase data implies that the resistivity measurements

are consistent in about 50% of the areas with previous measurements of field strength attenuation performed in the AM broadcast band.

#### 34-2675

**Analysis of circulation patterns in Grays Harbor, Washington, using remote sensing techniques.** Gatto, L.W., *Marine geodesy*, 1980, Vol.3, MP 1283, p.289-323, 45 refs.

**Remote sensing, Tidal currents, Water flow.**

The objective of this investigation was to analyze surface circulation patterns in Grays Harbor, Washington, during flood and ebb tide, using National Aeronautics and Space Administration (NASA) aerial photographs and thermal-IR imagery and low altitude aerial photographs of uranine dye drogues. The application of LANDSAT-1 and passive microwave imagery was evaluated but did not prove useful. Water temperature, salinity, and suspended sediment data and the results of hydraulic model studies were used to verify and supplement interpretations from the photographs and imagery. The use of remote sensing techniques in conjunction with ground truth data and hydraulic model results, when available, provides a more complete perspective of estuarine processes than is available by using conventional shipboard surveys alone.

#### 34-2676

**Relaxation processes in arctic ice fields.** (Relaksatsionnyye protsessy v lednykh poliakh Arktiki).

Bogorodskii, V.V., et al., *Atmosfera nauk SSSR. Doklady*, 1980, 250(3), p.589-592, In Russian. 9 refs. Smirnov, V.N.

**Relaxation (mechanics), Ice relaxation.**

#### 34-2677

**Possible mechanism of ice splinter production during riming.**

Choularton, T.W., et al., *Nature*, Aug. 24, 1978, 274(5673), p.791-792, 9 refs. Latham, J., Mason, B.J.

**Ice crystal growth, Supercooled clouds, Particle size distribution, Ice physics, Hoarfrost, Ice pressure.**

#### 34-2678

**Mechanism of ice splinter production during riming.** Mossop, S.C., *Geophysical research letters*, Feb. 1980, 7(2), p.167-169, 9 refs.

**Ice crystal growth, Cloud physics, Particle size distribution, Supercooled clouds, Drops (liquids), Hoarfrost, Doped ice.**

#### 34-2679

**Bank erosion in the southern Mackenzie River Delta, Northwest Territories, Canada.**

Outeth, D.N., Edmonton, University of Alberta, 1974, 89p., M.S. thesis. 51 refs.

**Shore erosion, Banks (waterways), Shoreline modification, Permafrost, River flow, Ice conditions, Wind factors, Bottom sediment, Aerial surveys, Environments, Canada—Northwest Territories—Mackenzie River.**

#### 34-2680

**Environmental assessment of the Alaskan continental shelf. Vol. 6. Biological studies.** Boulder, Colorado, Outer Continental Shelf Environmental Assessment Program, 1979, 852p., Principal investigators' final project reports. Numerous refs. **Marine biology.**

#### 34-2681

**Environmental assessment of the Alaskan continental shelf. Vol. 2. Physical science studies.** Boulder, Colorado, Outer Continental Shelf Environmental Assessment Program, 1979, 745p., Principal investigators' final project reports. For selection individual reports see 34-2682 through 34-2683.

**Oil spills, Sea ice, Sediments, Shoreline modification.**

#### 34-2682

**Dynamics of near shore ice.**

Colony, R., Environmental assessment of the Alaskan continental shelf. Vol.2. Physical science studies. Principal investigators' final project reports, Boulder, Colorado, Outer Continental Shelf Environmental Assessment Program, 1979, p.156-180.

**Sea ice, Pack ice, Drift, Remote sensing.**

#### 34-2683

**Study of climatic effects on fast ice extent and its seasonal decay along the Beaufort-Chukchi coasts.** Barry, R.G., Environmental assessment of the Alaskan continental shelf. Vol.2 Physical science studies. Principal investigators' final project reports, Boulder, Colorado, Outer Continental Shelf Environmental Assessment Program, 1979, p.272-375, Numerous refs. **Fast ice, Ice conditions, Seasonal variations, Climatic factors, Synoptic meteorology, Remote sensing.**

#### 34-2684

**Exogenic relief forming process in the cryolithozone.** (Ekzogennoe rel'efobrazovanie v kriolitozone). Sukhodrovskii, V.L., Moscow, Nauka, 1979, 280p., In Russian with English table of contents enclosed. Refs. p.252-278.

**Geocryology, Cryogenic soils, Cryogenic structures, Thermokarst, Frost heave, Ground ice, Patterned ground, Permafrost weathering, Slope processes, Solifluction, Rock streams, Human factors, Environmental protection.**

#### 34-2685

**Building design for construction in the North.** (Konstruktsii grazhdanskikh zdaniy dlia stroitel'stva na Severi).

Vas'kovskii, A.P., et al., Leningrad, Stroizdat, 1979, 135p., In Russian with English table of contents enclosed. 16 refs.

**Residential buildings, Permafrost beneath structures, Foundations, Piles, Roofs, Walls, Large panel buildings, Thermal insulation, Concrete structures, Design.**

#### 34-2686

**Winter operation of water navigation objects.** (Zimnaya ekspluatatsiia ob'ektov vodnogo transporta).

Ivanov, L.V., Moscow, Transport, 1978, 211p., In Russian with English table of contents enclosed. 10 refs.

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#### 34-2687

**Fundamentals of remote sensing methods of measuring water equivalent of snow and soil moisture content from terrestrial gamma radiation.** (Osnovy distantsionnykh metodov izmereniia vlagozapasov v snige i vlazhnosti pochvy po gamma-izlucheniui Zemli). Dmitriev, A.V., et al., Leningrad, Gidrometeoizdat, 1979, 144p., In Russian with English table of contents enclosed. 99 refs.

**Snow surveys, Tel-metering equipment, Aerial surveys, Airborne equipment, Gamma irradiation, Snow water equivalent, Soil water, Route surveys.**

#### 34-2688

**Winterizing the BM-21.** (Podgotovka BM-21 k zimnei ekspluatatsii).

Kuprin, G., *Tekhnika i vooruzhenie*, Sep. 1979, No.9, p.22-23, In Russian.

**Military equipment, Cold weather operation, Winter maintenance, Artillery.**

#### 34-2689

**DZ-126 Bulldozer-ripper.** (Bul'dozerno-rykhilitel'nyi agregat DZ-126). Zakharchuk, B.Z., et al., *Stroitel'nye i dorozhnye mashiny*, June 1979, No.6, p.9-10, In Russian.

**Excavation, Frozen ground.**

#### 34-2690

**Universal single-bucket hydraulic excavator EO-4121A.** (Odnokovshovyi universal'nyi gidravlicheskiy ekskavator EO-4121A). Gavrilov, N.I., et al., *Stroitel'nye i dorozhnye mashiny*, Aug. 1979, No.8, p.2-4, In Russian.

**Excavation, Frozen ground.**

#### 34-2691

**SP-62 Hydraulic hammer for the EO-4121A hydraulic excavator.** (Gidromolot SP-62 dlia gidravlicheskogo ekskavatora EO-4121A). Dmitrevich, I.U.V., et al., *Stroitel'nye i dorozhnye mashiny*, Aug. 1979, No.8, p.4-5, In Russian.

**Excavation, Frozen ground.**

#### 34-2692

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**Snow removal, Winter maintenance, Roads.**

#### 34-2693

**Digging-wheel excavator ETR-134 for trenching.** (Transheynyi rotornyj ekskavator ETR-134). Osipenko, B.V., et al., *Stroitel'nye i dorozhnye mashiny*, Nov. 1979, No.11, p.5-6, In Russian.

**Excavation, Frozen ground.**

#### 34-2694

**Modernized KB-100.OAS tower crane designed for the North.** (Modernizovannyi bashennyi kran KB-100 OAS v severnom ispolnenii). Al'perovich, A.I., et al., *Stroitel'nye i dorozhnye mashiny*, Nov. 1979, No.11, p.8-10, In Russian.

**Construction equipment, Cranes (hoists).**

#### 34-2695

**Cycle diagrams of icebreaker steam-turbine plants.** (Tsiklovye skhemy paroturbinnnykh ustanovok ledokolov).

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**Icebreakers, Engines, Design.**

#### 34-2696

**Calculation of working conditions of the propulsion plant of icebreakers and of their movement in the "running-on" mode.** (Raschet parametrov raboty GET ledokolov i ikh dvizheniia v rezhime "nabegov"). Iarovenko, V.A., *Sudostroenie*, Feb. 1979, No.2, p.36-38, In Russian. 2 refs.

**Icebreakers, Propellers, Design.**

#### 34-2697

**Coal mine construction according to the projects of the Siberian State Planning Design and Experimental Institute of Mining.** (Stroitel'stvo ugol'nykh predpriyatii po proektam Sibgiproskhaita). Materi, V.G., *Shakhtnoe stroitel'stvo*, May 1979, No.5, p.6-7, In Russian.

**Mining, Shafts (excavations), Buildings, Foundations, Permafrost beneath structures, Earthquakes, USSR—Yakutia.**

#### 34-2698

**Improving the process of drilling holes for artificial freezing.** (Uluchshenie kachestva bureniia zamorazhivaiushchikh skvazhin). Shparber, P.A., *Shakhtnoe stroitel'stvo*, Aug. 1979, No.8, p.22-23, In Russian.

**Mining, Artificial freezing, Boreholes.**

#### 34-2699

**Treatment and agricultural utilization of waste water in the northwestern Russian Soviet Federated Socialist Republic.** (Sel'skokhoziaistvennoe ispol'zovanie i obezvezhivanie stochnykh vod v usloviakh severozapada RSFSR). Shevelev, I.A.Z., *Vodosnabzhenie i sanitarnaia tekhnika*, 1979, No.6, p.9-11, In Russian.

**Waste treatment, Water.**

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**Cold weather construction, Grouting, Mortars, Antifreezes, Cement admixtures.**

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**Residential buildings, Permafrost beneath structures, Baykal Amur railroad.**

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**Road icing, Pavements, Electric heating.**

#### 34-2703

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**Walls, Thermal insulation, Buildings.**

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**Field studies of Series 91 residential buildings.** (Naturanoe issledovanie zhilykh zdaniy serii 91). Shilov, N.N., et al., *Zhilishchnoe stroitel'stvo*, Sep. 1979, No.9, p.5-6, In Russian.

**Large panel buildings, Lightweight concretes, Concrete structures, Ventilation, Thermal regime.**

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Permafrost beneath rivers, Water temperature, Algae, Biomass, Human factors, Environmental protection, USSR—Angara River.
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Polkoshnikova, O.V.  
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- 34-2711  
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- 34-2712  
Engineering at the ends of the earth: polar ocean technology for the 1980's. Washington, D.C., National Research Council, Assembly of Engineering, Marine Board, 1979, 74p., ADA-074 161. Refs. p.61-65.  
Research projects, Polar regions.  
Ocean engineering operations in polar waters, particularly in the Arctic, will increase during the foreseeable future as efforts continue to recover commercially valuable resources such as petroleum, fish, and various minerals. In the Antarctic, krill resource assessment and experimental fishing projects are being undertaken by several countries in preparation for large-scale development. In addition to U.S. activities, other nations, notably Canada, the Soviet Union, Japan, West Germany, and Norway are investing substantial funds in developing polar ocean engineering technologies. This report is a review of polar ocean engineering research and technology that are considered necessary to support of commercial and scientific operations during the decade of the 1980's.
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- 34-2719  
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The development of polar exploration and scientific research programs as seen through the eyes and experiences of one who participated in that development is presented. The author traces observation and measurement techniques of ice thickness, core drilling, oceanography, and hydrography in Arctic areas from the late 1930's through the late 1950's. He then shifts to Antarctica to describe ICY activities and administering the post-ICY research programs and closes by suggesting several reasons why polar research should continue and the general trend the research should take.
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**Permafrost thickness, Permafrost structure, Frozen rock temperature, Vegetation factors, USSR—Zyranka River.**
- 34-2778**  
Length of ground thawing season in East Yakutia. [Prodolzhitel'nost' sezona protaivaniia gruntov v Vostochnoi Iakutii]. Vasil'ev, I.S., Regional'nye i kriolitologicheskie issledovaniia v Sibiri (Regional and cryolithologic studies in Siberia) edited by I.A. Nekrasov, Yakutsk, Inst. merzlotovedeniia SO AN SSSR, 1979, p.74-83, In Russian. 11 refs.  
**Permafrost thickness, Active layer, Permafrost thermal properties, Ground thawing, USSR—Yakutia.**
- 34-2779**  
Thermal regime of rocks beneath a large thermokarst lake in Central Yakutia. [Temperaturnyi rezhim gornykh porod pod krupnym termokarstovym ozerom v Tsentral'noi Iakutii]. Tishin, M.I., Regional'nye i kriolitologicheskie issledovaniia v Sibiri (Regional and cryolithologic studies in Siberia) edited by I.A. Nekrasov, Yakutsk, Inst. merzlotovedeniia SO AN SSSR, 1979, p.83-90, In Russian. 6 refs.  
**Permafrost beneath lakes, Thermokarst, Frozen rock temperature, Lakes.**
- 34-2780**  
Seasonal freezing of bottom sediments in Lake Syrdakh. [Sezonnoe promerzanie donnykh gruntov oz. Syrdakh]. Tishin, M.I., Regional'nye i kriolitologicheskie issledovaniia v Sibiri (Regional and cryolithologic studies in Siberia) edited by I.A. Nekrasov, Yakutsk, Inst. merzlotovedeniia SO AN SSSR, 1979, p.91-97, In Russian. 2 refs.  
**Permafrost beneath lakes, Bottom sediment, Seasonal freeze thaw, Lakes.**
- 34-2781**  
Development of permafrost and ground water naleds in the Iengra River Basin (the Baykal Amur railroad area). [Ob osobennostiakh razvitiia mnogoletnemerzlykh porod i naledey podzemnykh vod v basseine r. Iengry (trassa BAMa)]. Boltsov, A.V., Regional'nye i kriolitologicheskie issledovaniia v Sibiri (Regional and cryolithologic studies in Siberia) edited by I.A. Nekrasov, Yakutsk, Inst. merzlotovedeniia SO AN SSSR, 1979, p.98-107, In Russian. 9 refs.  
**Permafrost origin, Permafrost hydrology, Naleds.**
- 34-2782**  
Influence of the frozen state of rocks on river shore erosion in permafrost areas. [Vliianie merzlogo sostoiianiia porod na razmyv beregov rek kriolitozony]. Are, F.E., Regional'nye i kriolitologicheskie issledovaniia v Sibiri (Regional and cryolithologic studies in Siberia) edited by I.A. Nekrasov, Yakutsk, Inst. merzlotovedeniia SO AN SSSR, 1979, p.107-117, In Russian. 19 refs.  
**Rivers, Shore erosion, Permafrost structure, Ground ice.**

## 34-2783

**Ground ice and cryogenic structures of loose deposits in the Muysk Basin.** (Podzemnye l'dy i kriogennoe stroenie rykhlykh otlozhenii iuzhnoi chasti Muyskoi spadiny). An, V.V., Regional'nye i kriolitologicheskie issledovaniia v Sibiri (Regional and cryolithologic studies in Siberia) edited by I.A. Nekrasov, Yakutsk, Inst. merzlotovedeniia SO AN SSSR, 1979, p.118-129, In Russian. 14 refs.

**Sediments, Alluvium, Cryogenic structures, Ground ice.**

## 34-2784

**Formation of ice layers in coastal recesses of Arctic shores.** (Formirovanie plastovykh l'dov v beregovykh nishakh arkticheskikh poberezhii). Fartyshev, A.I., Regional'nye i kriolitologicheskie issledovaniia v Sibiri (Regional and cryolithologic studies in Siberia) edited by I.A. Nekrasov, Yakutsk, Inst. merzlotovedeniia SO AN SSSR, 1979, p.129-136, In Russian. 12 refs.

**Shores, Ground ice, Permafrost structure.**

## 34-2785

**Origin of ground ice layers in the Yenisey River Valley.** (O genezise plastovoi zalezhi podzemnogo l'da v doline r. Eniseia). Kazanskii, O.A., Regional'nye i kriolitologicheskie issledovaniia v Sibiri (Regional and cryolithologic studies in Siberia) edited by I.A. Nekrasov, Yakutsk, Inst. merzlotovedeniia SO AN SSSR, 1979, p.136-143, In Russian. 5 refs.

**River basins, Valleys, Permafrost structure, Ground ice.**

## 34-2786

**Studying wettability of mineral grains in disperse systems.** (Izuchenie smachivaemosti mineral'nykh chastits dispersnykh sistem). Romanov, V.P., Regional'nye i kriolitologicheskie issledovaniia v Sibiri (Regional and cryolithologic studies in Siberia) edited by I.A. Nekrasov, Yakutsk, Inst. merzlotovedeniia SO AN SSSR, 1979, p.143-152, In Russian. 14 refs.

**Models, Frozen rocks, Sands, Grain size, Wettability.**

## 34-2787

**Annual cycle of surface albedo.** Kukla, G., et al., *Monthly weather review*, Jan. 1980, 108(1), p.56-68. 59 refs.

**Albedo, Ice optics, Snow optics, Surface properties, Reflection, Solar radiation, Pack ice, Mountains.**

Monthly mean surface albedo for the full spectral range of incoming solar radiation and average atmospheric properties is estimated for the period Apr. 1, 1974-Mar. 31, 1975. It can be considered approximately representative of average conditions in the last decade. The monthly global surface albedo, average without weighting for radiation income, ranges from 15.7% in August to 17.9% in December, with an annual average of 17.0%. This is higher than most previously published figures. The difference is partly due to the averaging method, and partly to more accurate satellite based information on snow and ice covers. Parameterized albedo values of characteristic surface types were compiled from published references. Estimates are zonally averaged separately for land and ocean in 2 deg latitudinal belts. (Auth.)

## 34-2788

**Ice conditions in areas adjacent to the North Atlantic Ocean from July to September 1979.** *Marine observer*, Jan. 1980, 50(267), p.42-46, 4 refs.

**Sea ice distribution, Ice conditions, Pack ice, Air temperature, Atmospheric pressure, Wind factors, Seasonal variations.**

## 34-2789

**Alaska foundation hot-wired to prevent frost movement.** *Engineering news-record*, Apr. 3, 1980, 204(14), p.20.

**Foundations, Cold weather construction, Frost penetration, Frost protection, Heating, Thermal insulation, Frost action, Frost heave.**

## 34-2790

**Energy conservation design guidelines: including mass and insulation in building walls.** Dexter, M.E., *ASHRAE journal*, Mar. 1980, 22(3), p.35-38, 4 refs.

**Thermal insulation, Walls, Buildings.**

## 34-2791

**Reducing heat loss through window retrofitting.** Hager, N.E., Jr., et al., *ASHRAE journal*, Mar. 1980, 22(3), p.55-57, 9 refs.

**Thermal insulation, Windows, Panels, Heat loss.**

## 34-2792

**Glaciological survey in the bare ice area near the Allan Hills in Victoria Land, Antarctica.** Fumihiko, N., et al., *Tokyo. National Institute of Polar Research. Memoirs*, 1979, Special issue No.15, p.13-23, 9 refs.

**Glacier surveys, Glacier flow, Antarctica—Allan Hills, Antarctica—Mawson Glacier.**

During the 1978-1979 field season, the third U.S.-Japan joint program entitled "Antarctic search for meteorites" was carried out on the plateau side of the Allan Hills in South Victoria Land. This program included a glaciological study to elucidate the mechanism of accumulation of a large number of meteorites in the bare ice area. In Dec. 1978, a triangulation chain with 20 stations, 15 km in length, was newly established in the Allan Hills bare ice field to investigate the ice flow. Values of elevation and coordinates (X,Y) of all stations are tabulated. (Auth. mod.)

## 34-2793

**Building roadbeds along main pipelines.** (Vozvedenie zemliano go polotna vdol' magistral'nykh truboprovodov). Plotskii, A.S., et al., *Avtomobil'nye dorogi*, Nov. 1979, No.11, p.10, In Russian.

**Roadbeds, Pipelines, Permafrost beneath structures, Roads.**

## 34-2794

**New soil stabilization technique.** (Novyi metod ukrepleniia gruntov). Lukanina, T.M., et al., *Avtomobil'nye dorogi*, Nov. 1979, No.11, p.10-11, In Russian.

**Roads, Permafrost beneath structures, Soil stabilization, Cements, Frost resistance.**

## 34-2795

**"Inexpensive" icebreaker not so inexpensive.** ("Deshchevyl' ledokol—dorogoi ledokol"). Lamekhov, A., *Morskoi flot*, 1979, No.11, p.41, In Russian.

**Icebreakers, Propellers, Ice breaking, Design.**

Comments on the A. Peschanskii article "Controllable propellers for icebreakers", see 32-4650.

## 34-2796

**Icebreakers with controllable propellers more reliable.** (Ledokol s VRSh nadezhnee). Ivanov, S., *Morskoi flot*, 1980, No.2, p.32-33, In Russian.

**Icebreakers, Ice navigation, Propellers, Ice breaking.**

## 34-2797

**Increasing the effectiveness of exploratory excavations in frozen rocks.** (O povyshenii effektivnosti provedeniia geologorazvedochnykh vyrobotok v merylykh porodakh). Tregub, A.M., *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedenii. Geologiya i razvedka*, Feb. 1980, No.2, p.111-114, In Russian. 3 refs.

**Blasting, Geological surveys, Explosives, Exploration, Permafrost.**

## 34-2798

**Revegetation of fir forests in the southern taiga of the Central Ural Mountains and Predural'e.** (Vozobnovlenie pikhtovykh lesov iuzhnoi talgi Srednego Urala i Predural'ia). Kononov, N.A., et al., *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedenii. Lesnoi zhurnal*, 1979, No.3, p.5-7, In Russian. 7 refs.

**Taiga, Landscape types, Revegetation.**

## 34-2799

**Physical and mechanical properties of Siberian larch wood preserved in permafrost for 24,500 years.** (O fiziko-mekhanicheskikh svoistvakh drevesiny listvennitsy sibirskoi, nakhodivshiesia v usloviakh vechnoi merzloty 24500 let). Diakonov, K.F., et al., *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedenii. Lesnoi zhurnal*, 1979, No.3, p.121-122, In Russian. 3 refs.

**Wood, Fossils, Permafrost.**

## 34-2800

**Landscape method of studying snow cover for land reclamation.** (Izuchenie snezhnogo pokrova landshaftnym metodom dlia tselei melioratsii zemel'). Pashkang, K.V., et al., *Moscow. Universitet. Vestnik. Seriya 5 Geografiia*, Jan.-Feb. 1980, No.1, p.64-71, In Russian with English summary. 6 refs.

**Swamps, Land reclamation, Snow surveys, Snow water equivalent, Vegetation factors.**

## 34-2801

**Naleds in the Aldan-Timpton interfluvium.** (Kharakteristika otноситel'noi nalednosti Aldano-Timpton'skogo mezhdurech'ia). Chizhova, N.I., *Moscow. Universitet. Vestnik. Seriya 4 Geologiya*, Jan.-Feb. 1980, No.1, p.60-63, In Russian. 3 refs.

**Naleds, Aerial surveys, Photographic reconnaissance, USSR—Yakutia.**

## 34-2802

**Peculiarities of road maintenance in East Siberia and the Far East.** (Osobennosti ekspluatatsii dorog Vostochnoi Sibiri i Dal'nego Vostoka). Nikitin, G.G., *Avtomobil'nye dorogi*, Jan. 1980, No.1, p.19-20, In Russian.

**Roads, Permafrost beneath structures, Winter maintenance, Embankments, Drainage.**

## 34-2803

**Report on model for winter hazard prevention on highway No.12 of Iwamizawa-shi, District of Okayama.** (Ippan Kokudo 12-go Iwamizawa-shi Okayama chiku setsugai boshi koho mokei fudo jikken hokokusho). Japan. Hokkaido Kaihatsukyoku. Kensetku Kiaki Kosakujyo, Sapporo, Japan, Jan. 1978, 66p., In Japanese.

**Ice prevention, Road maintenance, Winter maintenance, Road icing, Snow removal, Models, Snowdrifts.**

## 34-2804

**Drilling among the icebergs.** Davids, R.C., *Lamp*, Spring 1980, 62(1), p.2-7.

**Crude oil, Oil recovery, Icebergs, Environmental protection, Offshore drilling, Davis Strait.**

## 34-2805

**How sub-zero weather helps a bridge contractor.** *Engineering and contract record*, Apr. 1979, 92(4), p.50-51.

**Bridges, Ice crossings, Glacial till.**

## 34-2806

**Scattering of solar radiation by hexagonal ice crystals.** Wendling, P., et al., *Applied optics*, Aug. 1, 1979, 18(15), p.2663-2671, 13 refs.

**Wendling, R., Weickmann, H.K.**

**Ice crystal optics, Light scattering, Solar radiation, Analysis (mathematics).**

## 34-2807

**Swiss defroster ends salt use on Albany road.** *American city and country*, Sep. 1979, 94(9), p.44-45.

**Chemical ice prevention, Road icing, Damage, Environmental protection.**

## 34-2808

**Mining and the environment.** (Gornye raboty i okruzhaiushchaia sreda). Moisinets, V.N., et al., *Moscow, Nedra*, 1978, 191p., In Russian with English table of contents enclosed. 132 refs.

**Griaznov, M.V.**

**Mining, Environmental protection, Air pollution, Water pollution, Revegetation.**

## 34-2809

**Flow lines on Antarctic ice shelves.** Crabtree, R.D., et al., *Polar record*, Jan. 1980, 20(124), p.31-37, 16 refs.

**Doake, C.S.M.**

**Ice shelves, Glacier flow, Remote sensing, LANDSAT, Antarctica—Filchner Ice Shelf, Antarctica—Ronne Ice Shelf.**

Satellite images of Ronne and Filchner ice shelves show a variety of surface features, many of which are believed to indicate flow lines in the ice. Sufficient imagery is now available from Landsat satellites to plot these features from mosaics. Although some of the features have been recognized from aircraft, it was not until an overall view was provided that the true extent of the features and their relationship to the major ice streams became apparent. Using this evidence together with published ice thickness data from radio echo and seismic sounding, flow patterns within the ice shelves and tributary glaciers can be inferred. Flow lines show that the major input to Filchner Ice Shelf is from Slessor and Recovery glaciers, while Support Force Glacier contributes less than one third. On Ronne Ice Shelf, flow lines indicate that most of the ice comes from Foundation Ice Stream in the east and from Evans Ice Stream and three other ice streams in the west; there is a large area of relatively slow moving ice in between. Ice thickness and velocity data are now needed in order to quantify the ice discharge. However, satellite imagery can be used to estimate the relative importance of glaciers feeding ice shelves and to delineate the flow patterns within them. (Auth.)

34-2810

**Radio echo and magnetic sounding of the Antarctic ice sheet, 1978-79.**Drewry, D.J., et al. *Polar record*, Jan. 1980, 20(124), p.43-51, 13 refs.

Meldrum, D.T., Jankowski, E.

**Ice sheets, Radio echo soundings, Magnetic surveys.**

With work done in 1978-79, this cooperative venture between the Scott Polar Research Institute, U.S. National Science Foundation, and the Technical University of Denmark has now completed the radio echo and magnetic sounding of about 6.96 million sq km of Antarctica. Combined with soundings made by other groups, 70% of the continental area has now been surveyed for surface form, thickness, internal structure, rheology, thermodynamics, electrical properties, basal conditions and processes, and sub-ice geology. Methods and equipment are described and preliminary results in specific areas are given for: West Antarctic bedrock geophysics, Dufek Massif, Fichner Ice Shelf grounding zone, Thwaites Glacier, and southern Victoria Land.

34-2811

**Radioisotope power for polar camps. Stanford Research Institute. SRI Journal**, Sep. 1967, No. 16, p.8-9. Translated into German in *Polarforschung*, 37(1/2):169-171, 1967.**Radioactive isotopes, Electric power.**

The feasibility of using radioisotope power for small polar stations is considered. Logistics of such fuel, power-to-weight ratio, fuel is discussed and the cost of various radioisotopes given.

34-2812

**Proceedings.**

Symposium on Dynamics of Large Ice Masses, Ottawa, Aug. 1978, *Journal of glaciology*, 1979, 24(90), 520p., In English with French and German summaries. Includes subject and author indexes; abstracts of papers presented at the symposium but not published in full in this volume; abstracts of papers accepted for the symposium but not presented; and a general discussion which constituted the final session. For individual papers see: 34-2813 through 34-2845, or F-23178 through F-23199.

**Meetings, Ice sheets, Ice shelves, Floating ice.**

The symposium convened in Ottawa from August 21-25, 1978, organized by the International Glaciological Society, it was attended by nearly 120 scientists representing 11 different countries. The 35 papers included in this volume deal with a wide variety of topics including: glaciers and historical glaciology; ice sheet and sea ice dynamics; various ice sheet sounding techniques; mass balance, remote sensing, ice dating through cores, thickness measurement; and various modeling techniques. Many of the papers result from work done in Antarctica, especially the Ross Ice Shelf.

34-2813

**Ice flow along the Byrd Station strain network, Antarctica.**Whillans, I.M., *Journal of glaciology*, 1979, 24(90), p.15-28, In English with French and German summaries. 20 refs.**Ice sheets, Ice creep, Strains, Ice mechanics, Models, Antarctica—Byrd Station.**

The flow of the Antarctic ice sheet near Byrd Station is modeled using surface net accumulation-rate data, surface strain-rate data, and core-hole tilting results. The model empirically allows for the progressive development of ice fabric and for values of the vertical strain-rate nearer to zero at depth, and adjusts the strain-rates according to the effect of the climatic warming at the beginning of the Holocene. The validity of the model is supported by the agreements between calculated bed form and that measured by radar sounding, and between calculated and measured present-day ice-sheet thinning-rates. The ice was about 200 m thicker before thinning. The depth-age relationship for the Byrd Station ice core shows that the climatic change represented by the oxygen isotopic ratio of the ice began some 5,000 years sooner than in north Greenland but ended at about the same time. (Auth.)

34-2814

**Stability of temperate ice caps and ice sheets resting on beds of deformable sediment.**Boulton, G.S., et al. *Journal of glaciology*, 1979, 24(90), p.29-43, In English with French and German summaries. 28 refs.

Jones, A.S.

**Glacier flow, Glacier beds, Stability, Deformation.**

34-2815

**Thinning of the ice sheet in Mizuho Plateau, East Antarctica.**Naruse, R., *Journal of glaciology*, 1979, 24(90), p.45-52, In English with French and German summaries. 31 refs.**Ice sheets, Ice cover thickness, Snow accumulation, Antarctica—Mizuho Plateau.**

Surveys of a triangulation chain 250 km in length were carried out in Dec. 1969 and Dec. 1973-Jan. 1974 along the surface contour lines from 2,250 m to 2,600 m in Mizuho Plateau. Horizontal velocities were obtained as small values near the Yamato Mountains, while they had maxima of more than 20 m/a around 39E 72S in the drainage of the Shirase Glacier.

Submergence velocities showed large values in the region along 72S from 39E eastward to 43E. The amount of snow accumulation there, of average thickness 0.2 m/a, was not enough to compensate for the deficit of the ice mass caused by the submergence flow. It follows that the ice sheet was thinning there. It is suggested that the ice sheet of Mizuho Plateau is in an unstable condition as a whole. (Auth.)

34-2816

**Basal sliding of a thinning ice sheet, Mizuho Plateau, East Antarctica.**Mac, S., *Journal of glaciology*, 1979, 24(90), p.53-61, In English with French and German summaries. 20 refs.**Ice sheets, Basal sliding, Ice cover thickness, Antarctica—Mizuho Plateau.**

The Japanese Antarctic Research Expedition observed the thinning of the ice sheet, about 70 cm/year, in Mizuho Plateau. The thinning observed is analyzed using an equation of mass continuity. The result of the analysis indicates that the thinning is predominantly caused by the basal sliding and the basal sliding velocity is about 10 m/year. This sliding velocity is compared with the basal sliding velocity obtained by the calculation of the velocity due to internal deformation of the ice sheet. (Auth.)

34-2817

**Characteristics of ice flow in Marie Byrd Land, Antarctica.**Rise, K.E., *Journal of glaciology*, 1979, 24(90), p.63-75, In English with French and German summaries. 25 refs.**Ice sheets, Glacier flow, Radio echo soundings, Antarctica—Marie Byrd Land.**

Extensive radio echo-sounding has mapped the part of West Antarctica between Byrd Station, the Whitmore Mountains, the Transantarctic Mountains, and the Ross Ice Shelf. The ice sheet in this area is dominated by five major sub-parallel ice streams (A-E), which are up to 100 km wide and extend inland from the ground line of the Ross Ice Shelf for about 400 km. Their positions have been determined by crevassing seen on radio echo-sounding records, trimetrogon photographs, and Landsat imagery. The ice streams are characterized by their flat transverse cross-sections, while the intervening ice sheet exhibits domes and ridges. Ice flow lines are defined from the ice-surface contour pattern and the trend of the ice streams. It is apparent from this work that the flow line passing through Byrd Station joins ice stream D. The bedrock of the area is relatively smooth near the Ross Ice Shelf, becoming rougher near Byrd Station and especially so near the Whitmore Mountains. Bedrock troughs, which control the positions of the ice streams are believed to have a tectonic origin. In this paper the role of the ice streams in the glaciological regime of West Antarctica is investigated from radio-echo data and estimates of balance velocity, basal shear stress, and basal temperatures. (Auth.)

34-2818

**Measured velocities of interior East Antarctica and the state of mass balance within the I.A.G.P. area.**Young, N.W., *Journal of glaciology*, 1979, 24(90), p.77-87, In English with French and German summaries. 20 refs.**Snow accumulation, Ice sheets, Mass balance, Antarctica—East Antarctica.**

Recent measurements of accumulation and ice velocity made in the interior of East Antarctica indicate that a large sector between 80E and 135E and north of 80S has close to a zero net mass budget. This sector is within the study area for the International Antarctic Glaciological Project (I.A.G.P.) and covers a major portion of the area indicated for projects of special emphasis. Velocity measurements were made at a number of points on a traverse route from Mirny on the coast to Dome "C" in the interior. Accumulation measurements were made along this and other traverse routes, extending as far as Vostok by a number of methods. These included stake, stratigraphic, isotopic, and total beta-decay observations. The better accumulation data have allowed a review of the total mass input to be made. The true mass budget has been estimated by comparing velocities along the traverse routes and on a number of the outlet glaciers. For this purpose the area was divided into a number of drainage basins according to outlet at the coast. The area of about 1 million sq km and 150 Gt/a flux input is drained primarily by three glacier systems of which the Totten accounts for 40% of the flux from 55% of the area; the Vanderford 20% from 15%; and the Scott/Denman 20% from 20%. (Auth.)

34-2819

**Results from the I.A.G.P. flow-line study inland of Casey, Wilkes Land, Antarctica.**Budd, W.F., et al. *Journal of glaciology*, 1979, 24(90), p.89-101, In English with French and German summaries. 28 refs.

Young, N.W.

**Ice sheets, Flow rate, Ice cover thickness, Ice mechanics, Antarctica—Wilkes Land.**

In order to determine accurate velocities of the sheet in the interior of Antarctica, approximately along a flow line, a detailed trilateration net was established in 1973 from the summit of Law Dome (100 km inland) to about 250 km south near the 2,000 m contour. The net consisted of a double line of markers approximately 10 km apart with all sides and diagonals of the quadrilaterals measured with tellurometers. In addition, satellite doppler survey positions and astronomical azimuths were determined at about 50 km intervals to control the net on the large scale. Other measurements carried out en route included:

continuous barometric levelling, radio echo-sounding, gravimetry, accumulation, and surface sampling. The route was close to an earlier traverse route which reached Vostok in 1962 and along which other data, including snow-surface temperatures and temperature-depth gradients, were determined. The trilateration net was re-surveyed in 1975, allowing velocities and strain-rates to be determined. The results indicate that the ice sheet is close to balance in this region. Therefore, the measured velocities were used together with "balance velocities", further inland, to carry out a modelling study of a flow line, to derive particle trajectories, ages, temperature profiles, and "dynamics velocities", from a flow law. The results provide further insight into the dynamics and flow properties of the ice sheet. (Auth.)

34-2820

**Ice flow along an I.A.G.P. flow line and interpretation of data from an ice core in Terre Adélie, Antarctica.**Raynaud, D., et al. *Journal of glaciology*, 1979, 24(90), p.103-115, In English with French and German summaries. 24 refs.

Lorius, C., Budd, W.F., Young, N.W.

**Ice sheets, Ice cores, Drill core analysis, Climatic changes, Antarctica—Adélie Coast.**

An ice core has been obtained to the bedrock about 300 m deep in Terre Adélie, 5 km inland from the coast. Stable isotopes and gas content have been measured over the length of the core. The results have been interpreted in terms of the temperature and elevation of origin of the ice further inland on the ice sheet from the data obtained along an I.A.G.P. traverse towards Dome "C", and from Dome "C", at an elevation of about 3,200 m. The flow of the ice from Dome "C" to the coast has been modelled to determine the ages and particle trajectories of the ice for present conditions. It has been found that the upper isotopic and gas-content values in the core can be matched with the present regime, using a base for ice flow above the present bed which is suggested by moraine in the ice core. The ice in the layer from the 200 m depth, where the age is apparently more than 5,000 years, to the 250 m depth, appears to have originated from conditions which differ substantially from those existing on the present inland ice-sheet surface. The results give an indication of a colder climate and greater ice-sheet thickness in the past. (Auth.)

34-2821

**Ice-sheet flow properties derived from bore-hole shear measurements combined with ice-core studies.**Russell-Head, D.S., et al. *Journal of glaciology*, 1979, 24(90), p.117-130, In English with French and German summaries. 28 refs.

Budd, W.F.

**Ice sheets, Ice mechanics, Ice structure, Ice deformation, Antarctica—Law Dome.**

Samples of a Law Dome ice core were subjected to simple shear at temperatures and deviatoric stresses which match the *in situ* conditions of the ice sheet. Similar studies of randomly-oriented laboratory-made polycrystalline ice were undertaken. Long-term tests, lasting for up to two years, were required to determine minimum strain-rates. The flow law for the anisotropic ice was thus determined as a function of that for the isotropic ice together with a measure of c-axis fabric strength perpendicular to the shear plane. Core studies indicate that the upper part of the ice sheet has a polycrystalline structure appropriate to the surface longitudinal stress. Deeper in the core a strong concentration of near-vertical c-axes develops. Ice having very large crystals with multiple maxima fabrics was found in the lower quarter of the ice thickness. Shear measurements in the bore hole indicate the existence of high strain-rates in the zone of vertical c-axes, and of lower shear-rates below that level. The low values of shear-rates in the basal region region cannot be explained in terms of crystallographic changes alone, and therefore it is inferred that the shear stress decreases in this layer—a result which also provides a possible explanation for the development of the observed basal crystal structure. (Auth.)

34-2822

**Calculations of velocity and temperature in a polar glacier using the finite-element method.**Hooke, R.L., et al. *Journal of glaciology*, 1979, 24(90), p.131-146, In English with French and German summaries. 24 refs.

Raymond, C.F., Hothkiss, R.L., Gustafson, R.J.

**Ice sheets, Ice mechanics, Flow measurement, Ice temperature.**

34-2823

**Relationship of ultrasonic velocities to c-axis fabrics and relaxation characteristics of ice cores from Byrd Station, Antarctica.**Gow, A.J., et al. *Journal of glaciology*, 1979, 24(90), p.147-153, In English with French and German summaries. 12 refs.

Kohnen, H.

**Ice sheets, Ice mechanics, Drill core analysis, Relaxation (mechanics), Ultrasonic tests, Antarctica—Byrd Station.**

Deep cores from Byrd Station were used to calibrate an ultrasonic technique of evaluating crystal anisotropy in the antarctic ice sheet. Velocities measured parallel and perpendicular to the vertical axis of the cores yielded data in excellent agreement with the observed c-axis fabric profile and with the *in-situ* P-wave velocity profile measured parallel to the bore-hole axis by Bentley. Velocity differences in excess of 140 m/s for cores from below 1,300 m attest to the tight clustering of c-axes of

crystals about the vertical, especially in the zone 1,300-1,800 m. A small but significant decline in vertical velocity with ageing of the core, as deduced from Bentley's down-hole data, is attributed to the formation of oriented cracks that occur in the ice cores as they relax from environmental stresses. This investigation of cores from the 2,164 m thick ice sheet at Byrd Station establishes the ultrasonic technique as a viable method of monitoring relaxation characteristics of drilled cores and for determining the gross trends of  $\epsilon$  axis orientation in ice sheets. The Byrd Station data, in conjunction with Barkov's investigation of deep cores from Vostok, East Antarctica, also indicate that crystal anisotropy in the antarctic ice sheet is dominated by a clustering of  $\epsilon$  axis about a vertical symmetry axis. (Auth.)

#### 34-2824

**Margin of the Greenland ice sheet at Isua.**  
Colbeck, S.C., et al. *Journal of glaciology*, 1979, 24(90), p.155-165. In English with French and German summaries. 7 refs.

Gow, A.J.

**Ice sheets, Ice edge, Drill core analysis, Ice structure.**  
Field studies at a particular place at the margin of the Greenland ice sheet have provided information about the ice sheet. Ice temperatures were measured in five drill holes, two of which reached the unfrozen area of basal melting. Surface water entered these two bore holes, reaching the base in one, but remaining 59 m above the base in the other. The existence of this water conduit or fracture at 240 m depth, the calculated temperature profiles, and the local bedrock configuration suggest an area of stationary ice overlaid by the ice sheet. This situation suggests creep rupture at depth in the ice sheet. Ice-fabric analysis made above 240 m depth shows patterns similar to fabrics elsewhere near the margin in zones of low deviatoric stress. Unfortunately, no cores were obtained below that depth where stationary ice may exist.

#### 34-2825

**Dynamics of marine ice sheets.**  
Thomas, R.H., *Journal of glaciology*, 1979, 24(90), p.167-177. In English with French and German summaries. 22 refs.

**Ice sheets, Dynamic properties, Ice shelves, Mass balance.**

Marine ice sheets rest on land that, for the most part, is below sea-level. At the grounding line there is a transition from ice-sheet dynamics to ice-shelf dynamics, and the creep-thinning rate in this region is very sensitive to sea depth, rising sea-level causes increased thinning-rates and grounding-line retreat, but falling sea-level has the reverse effect. If the bedrock slopes down towards the centre of the ice sheet, there may be only two stable modes: a freely-floating ice shelf or a marine ice sheet that extends to the edge of the continental shelf. The only current example of marine ice sheets is the West Antarctic ice sheet. This is buttressed by the Ross and Ronne ice shelves, and if climatic warming were to prohibit the existence of these ice shelves, then the ice sheet would collapse. Field observations suggest that, at present, the ice sheet may be advancing into parts of the Ross ice shelf. Such advance, however, would not ensure the security of the ice sheet since ice streams that drain to the north appear to flow directly into the sea with little or no ice shelf to buttress them. If these ice streams do not flow over a sufficiently high bedrock sill, then they provide the most likely avenues for ice-sheet retreat. (Auth. mod.)

#### 34-2826

**Effect of crystal size and dispersed-solid inclusions on the activation energy for creep of ice.**

Baker, R.W., et al. *Journal of glaciology*, 1979, 24(90), p.179-194. In English with French and German summaries. 41 refs.

Gerberich, W.W.

**Ice crystal size, Ice creep, Temperature effects.**

#### 34-2827

**Role of shear heating in the dynamics of large ice masses.**

Yuen, D.A., et al. *Journal of glaciology*, 1979, 24(90), p.195-212. In English with French and German summaries. 25 refs.

Schubert, G.

**Ice sheets, Ice creep, Dynamic properties, Shear stress, Heating, Ice deformation.**

#### 34-2828

**Catastrophe model of the paleoclimate.**  
MacAyeal, D.R., *Journal of glaciology*, 1979, 24(90), p.245-257. In English with French and Russian summaries. 22 refs.

**Ice sheets, Dynamic properties, Climatic changes, Ice models.**

#### 34-2829

**Formation, flow, and disintegration of ice shelves.**  
Robin, G. de Q., *Journal of glaciology*, 1979, 24(90), p.259-271. In English with French and German summaries. 33 refs.

**Ice shelves, Ice formation, Ice creep, Ocean currents.**  
Ice shelves may develop either by continued thickening of sea ice that is held fast to the shore, or by the seaward extension of inland ice. For both processes, as well as for an understanding of ablation and of accumulation at the bottom surface of ice shelves, we need to understand melting and freezing processes in relation to salinity, temperature, and pressure. Consideration of these factors shows that basal melting beneath the thicker parts of ice shelves is much greater than is generally appreciated. This could be sufficient to bring the estimated mass balance of Antarctica into approximate equilibrium. It

appears that most antarctic ice shelves are dependent on the supply of inland ice for their continued existence. However, the thick layer of sea ice beneath the Amery Ice Shelf is readily explained in terms of sub-ice water circulation. Transport of heat and mass by water motion beneath ice shelves has the potential to change ice thicknesses by similar amounts to that caused by internal deformation of the ice shelf. Bottom freezing due to thermal conduction throughout the ice shelf is of minor importance. (Auth.)

#### 34-2830

**Ice shelves: a review.**  
Thomas, R.H., *Journal of glaciology*, 1979, 24(90), p.273-286. In English with French and German summaries. 46 refs.

**Ice sheets, Ice shelves, Calving.**

Ice shelves form where ice flows off the antarctic ice sheet onto the sea to produce rather flat slabs of floating ice which, for the theoretician, are the simplest of all large masses. Boundary conditions are well defined, conditions change very slowly over distances that are large compared with ice thickness, and horizontal velocities are independent of depth. Unconfined ice shelves can be used as giant creep machines to investigate the ice flow law at low stresses. Further inland, where movement is hampered by obstructions such as grounded ice rises and by shear between the ice shelf and its sides, the ice shelf transmits a back-pressure which tends to restrict drainage from the ice sheets that feed it. Wastage from ice shelves is principally by calving and by bottom melting. There has been no direct measurement of bottom-melting rates, but indirect evidence suggests that, near the seaward edges of ice shelves, bottom-melting rates may exceed one meter per year, with significant melting within about 100 km of the ice front. Further inland there may be bottom freezing, and analysis of cores taken from the Amery Ice Shelf indicate that bottom-freezing rates average 0.5 m over a distance of 200 km. Such high freezing-rates are probably exceptional, and, beneath the Ross Ice Shelf, freezing appears to be insignificant even at a distance of 400 km from the ice front. (Auth. mod.)

#### 34-2831

**Ice-thickness patterns and the dynamics of the Ross Ice Shelf, Antarctica.**

Bentley, C.R., et al. *Journal of glaciology*, 1979, 24(90), p.287-294. In English with French and German summaries. 11 refs.

Clough, J.W., Jezek, K.C., Shabtaic, S.

**Ice shelves, Ice cover thickness, Flow measurement, Antarctica—Ross Ice Shelf.**

As part of the Ross Ice Shelf Geophysical and Glaciological Survey, a detailed map of ice thickness has been produced from airborne radar measurements closely tied to the network of survey stations on the ice-shelf surface. The map, drawn with a 20 m contour interval, reveals a highly complex pattern of thickness variations reflecting presumably, at least in part, complex ice-shelf dynamics. Many features of the thickness variation pattern appear to be associated with zones of grounded ice, but not all. Features of interest include many ice thickness minima, with closures up to 120 m, a narrow, greatly elongated ridge-trough system 450 km or more in length; a few ice thickness maxima, steep regional gradients of 10 m km in freely floating ice; highly contorted contours suggesting a large-scale "turbulence", and at least two remarkable step-like changes in ice thickness. The irregularity of many of these features suggests dynamic non-equilibrium, i.e., the existence of transients in the dynamic system, so that the ice shelf as a whole suggests a state of rather rapid change. Flow-bands constructed on the basis of the strengths of the echo from the ice-water interface clearly delineate the outflow from the main East Antarctic outlet glaciers in the grid eastern part of the shelf. (Auth. mod.)

#### 34-2832

**Dynamics of the Ross Ice Shelf revealed by radio echo-sounding.**

Neal, C.S., *Journal of glaciology*, 1979, 24(90), p.295-307. In English with French and German summaries. 19 refs.

**Ice shelves, Dynamic properties, Radio echo soundings, Antarctica—Ross Ice Shelf.**

Radio-echo data have yielded information on the dynamics of the Ross Ice Shelf. Distinctive features present on the radio-echo records have been used to delineate several flow lines on the ice shelf. Measurement of the power returned from the ice-water interface has revealed regional variations in the r.f. dielectric loss of Ross Ice Shelf ice. These variations are used to indicate zones of bottom melting and freezing. (Auth.)

#### 34-2833

**Lateral density differences from seismic measurements at a site on the Ross Ice Shelf, Antarctica.**

Kirchner, J.F., et al. *Journal of glaciology*, 1979, 24(90), p.309-312. In English with French and German summaries. 6 refs.

Bentley, C.R., Robertson, J.D.

**Seismic surveys, Ice shelves, Antarctica—Ross Ice Shelf.**

Seismic compressional-wave data from short refraction shooting carried out during the 1974-75 and 1976-77 seasons at J-9, the site of the Ross Ice Shelf Drilling Project, have been compared. Significant dissimilarities were found to exist between the two sets of data. The measurements were made at locations about 2 km apart, with three unreversed profiles 60 deg apart recorded during the 1976-77 season and one unreversed profile during the 1974-75 season. The resulting velocity-depth profiles, and hence the derived density-depth profiles, differ by as much as 8%. The density difference is believed to

be due to the passage of the ice through the high-stress system associated with the interaction between Ice Stream B, flowing in from the West Antarctic ice sheet, and the Ross Ice Shelf. A reversed refraction profile carried out at station B-C about 30 km upstream shows evidence of dipping layers that may be similarly caused. (Auth. mod.)

#### 34-2834

**Seismic short-refraction studies on the Ross Ice Shelf, Antarctica.**

Kirchner, J.F., et al. *Journal of glaciology*, 1979, 24(90), p.313-319. In English with French and German summaries. 15 refs.

Bentley, C.R.

**Seismic surveys, Ice shelves, Antarctica—Ross Ice Shelf.**

Seismic short-refraction studies were carried out at five stations on the Ross Ice Shelf during the 1976-77 summer season as part of the comprehensive Ross Ice Shelf Geophysical and Glaciological Survey. Measurements of the velocities of compressional waves were made at each location. Compressional wave velocities were measured along more than one azimuth at three sites, and shear wave velocities (both components) at two. Travel-time curves were fitted to an exponential expression by means of a non-linear least-squares regression technique. The errors in the apparent velocities are estimated to be about 50 m/s at short distances, diminishing to about 10 m/s near the ends of the profiles. Compressional-wave velocities show only slight variations with azimuth and only over certain depth intervals, showing that constant-velocity surfaces are essentially horizontal. Shear-wave velocities, however, exhibit large variations according to azimuth and polarization, indicating that transverse isotropy is violated at least in the upper 30-40 m of the ice shelf. It is believed that the anisotropy is caused by structural details in the firm perhaps modified by preferred crystal orientation and that it may arise at least partly from anisotropic stresses in the ice shelf. (Auth.)

#### 34-2835

**Electromagnetic sounding of bottom crevasses on the Ross Ice Shelf, Antarctica.**

Jezek, K.C., et al. *Journal of glaciology*, 1979, 24(90), p.321-330. In English with French and German summaries. 8 refs.

Bentley, C.R., Clough, J.W.

**Electromagnetic prospecting, Crevasses, Bottom topography, Ice shelves, Antarctica—Ross Ice Shelf.**

During the 1976-77 season of the Ross Ice Shelf Geophysical and Glaciological Survey, a series of vertical electromagnetic sounding profiles of subsurface features was completed at station J-9. The survey comprised three five-kilometer north-west-southeast profiles separated by one kilometer and six two-kilometer northeast-southwest profiles, and was carried out on the surface using 35 MHz and 50 MHz radar systems. Folded-dipole antennae were used and oriented to detect reflectors both along and perpendicular to the profile path. This was done to facilitate the interpretation of the data, which indicated a complex system of bottom crevasses. Measurements of the positions, heights, and shapes of these crevasses showed at least two sets of crevasses varying in both strike and size. The larger crevasses, about 120 m high and oriented more or less normal to the flow direction are probably associated with the movement of ice stream B across the grounding line between the West Antarctic ice sheet and the Ross Ice Shelf. A satisfactory explanation for the secondary set of crevasses, about 60 m high and forming an angle of 60 deg with the first set, has not yet been found. (Auth.)

#### 34-2836

**Investigation of bottom mass-balance rates by electrical resistivity soundings on the Ross Ice Shelf, Antarctica.**

Shabtaic, S., et al. *Journal of glaciology*, 1979, 24(90), p.331-343. In English with French and German summaries. 21 refs.

Bentley, C.R.

**Ice shelves, Mass balance, Ice bottom surface, Ice temperature, Electrical resistivity, Antarctica—Ross Ice Shelf.**

Electrical resistivity sounding, using the four-electrode Schlumberger array, has been carried out at 11 locations on the Ross Ice Shelf. The apparent resistivity curves generally show four characteristic zones. The first, at distances from 1 to 10 m, reflects the near-surface zone of seasonal temperature changes and inhomogeneities. The second zone, from 10 m to 100 m, reflects primarily the increasing density with depth in the upper 50 m of the ice shelf, modified, in some locations, by temperature variations. The third zone, from 100 m to a distance roughly equal to the ice thickness, is affected principally by the temperature gradient in the solid ice. In the fourth zone, at distances greater than approximately twice the ice thickness, the apparent resistivity usually decreases rapidly with distance, owing to the highly conductive sea-water beneath the ice shelf. At some stations associated with ice streams and outlet glaciers, however, an increase at large spacings indicates much more resistive basal ice. Using data from seven locations on the grid eastern half of the shelf that do not show obvious evidence of a basal resistive zone, including temperatures to 100 m at two of the sites, the mass-balance rate at the bottom of the ice is estimated to be within a few tenths of a meter per year of zero at distances between 50 and 530 km from the ice front, assuming steady-state condition over most of the ice shelf. (Auth. mod.)



34-2837

**Dating of Ross Ice Shelf cores by chemical analysis.** Herron, M.M., et al, *Journal of glaciology*, 1979, 24(90), p.345-357. In English with French and German summaries. 34 refs.

Langway, C.C., Jr.

**Ice shelves, Ice cores, Chemical analysis, Ice dating, Antarctica—Ross Ice Shelf.**

Seasonal variations in sodium concentrations have been measured on surface-pit snow samples and on firn and ice core samples from the Ross Ice Shelf, Antarctica. The predominant source for the Na is sea salt, indicated by greater concentration levels at seaward sites. Small Al concentrations show that the input of continental dust is comparable to that at inland antarctic locations, and that dust contributes only a negligibly small fraction of the Na on the shelf. Maximum Na concentrations occur in the winter or early spring, as is the case for Greenland ice. The annual accumulation rate at J-9, determined by counting Na concentration peaks with depth, is 90 kg/sq m/yr, in agreement with rates determined radiometrically. Annual cycles in Na concentration are also detectable at depth in the J-9 ice core. It is suggested that Na concentration is a useful diagnostic criterion for distinguishing between East Antarctic ice, West Antarctic ice, and ice that fell as snow on the shelf itself. The transition between snow that is chemically characteristic of the ice-shelf regime to snow of an inland regime is expected to occur near the 500 m elevation contour. This position is up to 200 km inland of the grounding line. (Auth. mod.)

34-2838

**Modeling sea-ice features and processes.**

Rothrock, D.A., *Journal of glaciology*, 1979, 24(90), p.359-375. In English with French and German summaries. 69 refs.

**Sea ice, Floating ice, Drift, Ice floes, Ice cover thickness, Models.**

34-2839

**Mechanical energy considerations in sea-ice dynamics.**

Coon, M.D., et al, *Journal of glaciology*, 1979, 24(90), p.377-389. In English with French and German summaries. 15 refs.

Pritchard, R.S.

**Sea ice, Dynamic properties, Mathematical models, Ice mechanics, Ice physics.**

34-2840

**Mass-balance aspects of Weddell Sea pack-ice.**

Ackley, S.F., *Journal of glaciology*, 1979, 24(90), p.1286, p.391-405. In English with French and German summaries. 20 refs.

**Sea ice distribution, Mass balance, Ice deformation, Salinity, Weddell Sea.**

The Weddell Sea pack ice undergoes several unique advance-retract characteristics related to the clockwise transport in the Weddell Gyre, the physical setting for the pack ice, and the free boundary with the oceans to the north. From satellite-derived ice charts, the annual cycle of the pack ice advance and retreat is depicted. The Weddell pack advance is characterized by a strong east-moving component as well as the north advance seen in other regions such as East Antarctica. Physical characteristics of the pack ice at the summer minimum ice edge are presented. Indications are that deformation is a significant component of the ice accumulation, deformed ice accounting for c. 15 to 20% of the area covered in the year-round pack. Ablation characteristics are inferred from observations made during field work and from satellite imagery. These observations indicate that surface-melt ablation typically seen on Arctic pack is not seen on the Weddell pack inside the summer edge. Using the physical-property data and transport inferred from ship and iceberg drifts, a new annual ice accumulation > 3 m is inferred over the continental shelf in the South compared to < 2 m previously estimated. The implication is that salt flux into the ocean over the shelf may be significantly larger, thereby increasing the production of Western Shelf Water, a component of Antarctic Bottom Water. (Auth.)

34-2841

**Simple model to calculate the compactness of ice floes.**

Neralla, V.R., et al, *Journal of glaciology*, 1979, 24(90), p.407-414. In English with French and German summaries. 12 refs.

Liu, W.S.

**Sea ice distribution, Ice floes, Ice models, Ice forecasting.**

34-2842

**Satellite studies of fresh-water ice movement on Lake Erie.**

Wiesnet, D.R., *Journal of glaciology*, 1979, 24(90), p.415-426. In English with French and German summaries. 11 refs.

**Lake ice, Drift, Remote sensing, Spaceborne photography, Wind factors.**

34-2843

**Stability of glaciers and ice sheets against flow perturbations.**

Thompson, D.E., *Journal of glaciology*, 1979, 24(90), p.427-441. In English with French and German summaries. 26 refs.

**Glacier flow, Ice sheets, Stability.**

34-2844

**Use of a rational model in the mathematical analysis of a polythermal glacier.**

Fowler, A.C., *Journal of glaciology*, 1979, 24(90), p.443-456. In English with French and German summaries. 17 refs.

**Boundary value problems, Glacier flow, Mathematical models.**

34-2845

**Deduction of glacier flow from the distribution of elongated bubbles.**

Nakawo, M., *Journal of glaciology*, 1979, 24(90), p.457-467. In English with French and German summaries. 13 refs.

**Glacier flow, Bubbles, Strain tests.**

34-2846

**Calculating combined end- and side-lap welds at low temperature.** [O raschete kombinirovannykh svarnykh soedinenii s lobovymi i flangovymi shvami pri nizkikh temperaturakh].

Semenovich, M.D., *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedenii. Stroitel'stvo i arkhitektura*, 1979, No.7, p.17-22. In Russian. 8 refs.

**Welding, Joints (junctions), Thermal stresses, Analysis (mathematics).**

34-2847

**Stresses in triple layer wall panels at different rates of temperature drop along thickness.** [Issledovaniia napriazhenii v trekhslonnoi stenovoi paneli pri razlichnykh temperaturnykh perepadakh po ee tolshchine].

Albaut, G.N., et al, *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedenii. Stroitel'stvo i arkhitektura*, 1979, No.7, p.118-123. In Russian. 8 refs.

**Buildings, Walls, Panels, Thermal stresses.**

34-2848

**Effect of petroleum products on Arctic snow-ice cover.** [Vozdelstvie nefteproduktov na snezhnoledianoi pokrov Arktiki].

Izmailov, V.V., *Geograficheskoe obshchestvo SSSR. Izvestiia*, Mar-Apr. 1980, 112(2), p.147-152. In Russian. 4 refs.

**Pollution, Snow cover, Ice cover, Polar regions, Petroleum products.**

34-2849

**Transport engineers and the economic development of West Siberia.** [Transportnye stroiteli kompleksnomu osvoeniiu Zapadnoi Sibiri].

Melkonov, S.S., *Transportnoe stroitel'stvo*, Jan. 1980, No.1, p.3-6. In Russian.

**Railroads, Permafrost beneath structures, Swamps, Roads, Cold weather construction.**

34-2850

**Slit blasting technique of trenching for the Baykal Amur railroad.** [Shchelevzryvnye transhei na BAMEj].

Anisimov, D.I., et al, *Transportnoe stroitel'stvo*, Jan. 1980, No.1, p.6-8. In Russian.

Potapova, L.G., Balbachan, I.P.

**Trenching, Blasting, Permafrost.**

34-2851

**Instruments for determining soil density and moisture content.** [Effektivnye pribory dlia opredeleniia vlazhnosti i plotnosti gruntov].

Gorelik, A.M., et al, *Transportnoe stroitel'stvo*, Jan. 1980, No.1, p.8-9. In Russian.

Druzhinin, M.K.

**Soil freezing, Density (mass/volume), Soil water, Measuring instruments.**

34-2852

**Bridge crossing the Irtysh River at Omsk.** [Mostovoi perekhod cherez Irtysh v Omske].

Vinogradov, K.P., et al, *Transportnoe stroitel'stvo*, Jan. 1980, No.1, p.9-11. In Russian.

Tsyganov, S.V.

**Bridges, Design.**

34-2853

**Intermediate columnar bridge piers of the Baykal Amur railroad.** [O primeneniі promezhutochnykh stolbchatykh opor na mostakh BAMEj].

Ryzenko, A.P., *Transportnoe stroitel'stvo*, Jan. 1980, No.1, p.11-12. In Russian. 2 refs.

**Bridges, Permafrost beneath structures, Piers, Concrete structures, Baykal Amur railroad.**

34-2854

**Heading machine complex for tunneling.** [Sshitovoi prokhodcheskii kompleks dlia sooruzheniia tonnelei sposobom prodavlianiia].

Bobrovskii, L.M., et al, *Transportnoe stroitel'stvo*, Jan. 1980, No.1, p.12-14. In Russian.

Strel'tsov, V.V.

**Tunneling (excavation), Construction equipment, Baykal Amur railroad.**

34-2855

**Sprayed concrete in tunnel construction in the Baykal Amur railroad area.** [Primenenie nabryzgbetona pri stroitel'stve tonnelei BAMEj].

Golitsynskii, D.M., *Transportnoe stroitel'stvo*, Jan. 1980, No.1, p.14-15. In Russian. 2 refs.

**Tunnels, Linings, Reinforced concretes, Winter concreting, Earthquakes, Baykal Amur railroad.**

34-2856

**Construction of roadbeds on hummocky peats.** [Vozvedenie zemliannogo polotna na bugristykh torfianikakh].

Plotskii, A.S., et al, *Avtomobil'nye dorogi*, Dec. 1979, No.12, p.3-4. In Russian. 2 refs.

Golenko, N.A., Naumov, V.G.

**Roadbeds, Peat, Swamps, Hummocks, Frost heave, Roads, Design.**

34-2857

**Increasing the effectiveness of snow removal patrols on roads (Discussion).** [Povysit' effektivnost' patrol'noi snegoochistki dorog (v poriadke obsuzhdeniia)].

Kungurtsev, A.A., et al, *Avtomobil'nye dorogi*, Dec. 1979, No.12, p.8-9. In Russian.

Ivanov, V.D.

**Winter maintenance, Snow removal, Road maintenance.**

34-2858

**Optimal versions of road construction stages in Yakutia (Discussion).** [Optimal'nye varianty stadiinogo stroitel'stva avtomobil'nykh dorog v IAKutii (v poriadke obsuzhdeniia)].

Zhukov, E.A., *Avtomobil'nye dorogi*, Dec. 1979, No.12, p.17-18. In Russian. 8 refs.

**Roads, Permafrost beneath structures, Snow roads, Ice roads.**

34-2859

**Deformation of embankments built on permafrost.** [Deformativnye svoistva nasypei na vechnomerzlykh gruntakh].

Ivanov, V.N., *Avtomobil'nye dorogi*, Dec. 1979, No.12, p.20-22. In Russian. 2 refs.

**Embankments, Permafrost beneath structures, Roads, Design.**

34-2860

**Construction-related oil spills along Trans-Alaska Pipeline.**

Kavanagh, N., et al, Joint State/Federal Fish and Wildlife Advisory Team. Special report No.15. Anchorage, Alaska, 1977, 16p., 16 refs.

Townsend, A.

**Oil spills, Hot oil lines, Countermeasures, Environmental impact.**

34-2861

**Ultrasonic study in supercooled water to -26°C.** [Etude ultrasonore de l'eau en surfusion jusqu'à -26°C].

Bacri, J.C., et al, *Journal de physique. Lettres*, Aug. 15, 1979, 40(16), p.L403-L405. In French with English summary. 10 refs.

Rajaonarison, R.

**Supercooling, Water, Ultrasonic tests, Attenuation, Velocity, Temperature effects, Acoustics.**

34-2862

**Winter service and road maintenance.** [Winterdienst und Strassenerhaltung].

Suter, K., *Strasse und Verkehr*, Mar. 1980, 66(3), p.77. In German.

**Road maintenance, Winter maintenance, Chemical ice prevention, Salting.**

34-2863

**Instructions for the performance and acceptance of jobs concerning the shield technique of building collecting-tunnels in cities and industrial enterprises.** [Ukazaniia po proizvodstvu i priemke rabot po stroitel'stvu v gorodakh i na promyshlennykh predpriatiakh kolektornykh tonnelei, sooruzhaemykh sposobom shchitovoi prokhodki].

Russia. Gosudarstvennyi komitet po delam stroitel'stva, Moscow, Stroizdat, 1975, 38p., SN 322-74. In Russian with English table of contents enclosed.

**Tunneling, Mining, Shaft sinking, Artificial freezing, Concrete structures, Supports, Formwork (construction).**

34-2864

Instructions for designing underground low temperature storage for liquefied hydrocarbon gases. [Instruktsiya po proektirovaniu podzemnykh nizkotemperaturnykh khranilishch szhizhennykh uglevodorodnykh gazov].

Russia. Gosudarstvennyi komitet po delam stroitel'stva, Moscow, Stroiizdat, 1977, 29p., SN 486-76. In Russian with English table contents enclosed.

Underground storage, Liquefied gases, Permafrost.

34-2865

Roads. Rules of construction and acceptance of jobs. Approval for operation. [Avtomobil'nye dorogi. Pravila proizvodstva i priemki rabot. Priemka v ekspluatatsiyu].

Russia. Gosudarstvennyi komitet po delam stroitel'stva, Stroiitel'nye normy i pravila. Chast' III, Razdel D, Glava 5 (Building standards and regulations (U.S.S.R.), Part III, Section D, Chapter 5), Moscow, Stroiizdat, 1973, 87p., SNiP III-D-5-73. In Russian with English table of contents enclosed.

Roads, Roadbeds, Permafrost beneath structures, Cold weather construction, Earthwork, Excavation, Saline soils, Pavements.

34-2866

Construction of underwater crossings of main pipelines. [Sooruzhenie podvodnykh perekhodov pri stroitel'stve magistral'nykh truboprovodov].

Russia. Glavnoe upravlenie gazovoi promyshlennosti, Vedomstvennye normy i rastsenki na stroitel'nye, montazhnye i remontno-stroitel'nye raboty (Statement of norms and evaluations for construction, installation and repair jobs), Moscow, Transport, 1970, 36p., A-35. In Russian with English table of contents enclosed.

Hydraulic structures, Pipelines, River crossings, Trenching, Pipe laying, River ice, Snow removal, Ice cutting, Polynyas, Dredging.

34-2867

Construction in the Arctic and the Far North. [Stroitel'nye raboty v Arktike i na Krainem Severe].

Russia. Ministerstvo morskogo flota, Vedomstvennye normy i rastsenki na stroitel'nye, montazhnye i remontno-stroitel'nye raboty (Statement of norms and evaluations for construction, installation and repair jobs), Moscow, Transport, 1970, 95p., VNIR-46. In Russian with English table of contents enclosed.

Excavation, Blasting, Permafrost beneath structures, Artificial thawing, Foundations, Pile driving, Buildings, Walls, Prefabrication, Panels, Thermal insulation.

34-2868

Collection No.1 of unified regional individual estimates for construction. Earthwork. [Sbornik No.1 edinykh raionnykh edimichnykh rastsenok na stroitel'nye raboty. Zemlianye raboty].

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34-2869

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Frozen rocks, Excavation, Drilling, Electric equipment, Thermal drills, Electric fields, Electric heating, Design.

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34-2871

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Water pipelines, Pipeline freezing, Frost protection, Design.

34-2872

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Permafrost distribution, Earthquakes, Mapping, Baykal Amur railroad.

34-2873

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34-2874

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Trees (plants), Growth, Active layer, Thickness, Forest tundra, Soil water, Vegetation, Permafrost.

34-2875

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Hail clouds, Mathematical models, Hailstone growth.

34-2876

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34-2877

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Hailstones, Water films, Radiation absorption, Scattering, Radar echoes.

34-2878

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Hailstones, Radar echoes, Ice nuclei, Formation.

34-2879

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Radar, Icing rate, Supercooled fog.

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Soil water migration, Mathematical models.

34-2881

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Mountain glaciers, Glacier alimentation, Glacier ablation, Mass balance.

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Snowmelt, Snow air interface, Heat transfer, Analysis (mathematics).

34-2884

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River basins, Glaciation, Glacier ablation, Thawing rate, Analysis (mathematics).

34-2885

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34-2887

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Forest canopy, Snow accumulation, Snow surveys, Precipitation gages, Snow density, Snow water equivalent.

34-2888

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River ice, Ice edge, Icebound rivers.

34-2889

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River ice, Ice edge, Icebound rivers.

34-2890

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Power line icing, Mountains, Ice accretion, Ice cover thickness, Ice loads, Wind factors.

34-2891

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Power line icing, Icing rate, Meteorological factors.

34-2892

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Snowstorms, Atmospheric disturbances, Wet snow, Snow accumulation, Wind factors, Charts.

34-2893

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River basins, Ice conditions, Snowmelt, Flood forecasting, Electric power.

34-2894

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34-2895

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Mountains, Snow surveys, Route surveys, Snow water equivalent.

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Glaciation, Mountain glaciers, Glacier ablation, Rivers, Alimentation, USSR—Kamchatka Peninsula.

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Slope processes, Snowmelt, Mudflows, Baykal Amur railroad.

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34-2900

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Soil freezing, Frost penetration, Seasonal freeze thaw, Permafrost distribution, Mapping, Permafrost thickness, Permafrost depth, Permafrost hydrology, Taliks, Water chemistry, Chemical analysis, Subsea permafrost, Thermokarst, Alasy, USSR—Yakutia.

34-2916

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**Soil freezing, Frost penetration, Seasonal freeze thaw, Maps, Permafrost distribution, Permafrost thickness, Permafrost depth, USSR—Yakutia.**

34-2917

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**Sedimentation, Permafrost origin, Permafrost structure, Ice veins, Patterned ground, USSR—Muostakh Island.**

34-2918

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**Subsea permafrost, Permafrost origin, Permafrost transformation, USSR—Sannikov Strait.**

34-2919

**Lacustrine deposits on the trap plateau of West Yakutia.** [Otlozheniia ozernykh kotlovin na trappovom plato Zapadnoi IAKutii].

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**Lakes, Lacustrine deposits, Cryogenic structures, Permafrost hydrology, Taliks.**

34-2920

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**Plains, Permafrost thermal properties, Frozen rock temperature, Topographic effects, Permafrost structure, Permafrost hydrology.**

34-2921

**Authigenic minerals in syngenetically freezing deposits of Central Yakutia.** [Autigennyye mineraly v syngeneticheski promerzavshikh otlozheniiakh Tsentral'noi IAKutii].

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**Pleistocene, Frozen fines, Sedimentation, Mineralogy, Cryogenic structures, Cryogenic textures.**

34-2922

**Classification of permafrost-cross section elements according to their electrochemical activity.** [O tipizatsii merzlotno-geologicheskikh elementov po ikh elektrokhimicheskoi aktivnosti].

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**Frozen ground chemistry, Permafrost physics, Electrical properties, Geological cross sections.**

34-2923

**Lithologic and palynologic characteristics of alassy deposits in Central Yakutia.** [Litologo-palynologicheskaia kharakteristika otlozhenii alassykh ozer Tsentral'noi IAKutii].

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**Frozen fines, Alassy, Lithology, Palynology.**

34-2924

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**Site surveys, Geocryology, Frozen rock temperature, Cryogenic textures, Permafrost structure, Baykal Amur railroad.**

34-2925

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**Mining, Site surveys, Permafrost thickness, Permafrost thermal properties, Heat transfer, Geothermy.**

34-2926

**Cryogenic structure of loose deposits in the southern part of the upper Zeya plain and the Ogoronsk Basin.** [Kriogennoe stroenie rykhlykh otlozhenii iuzhnoi chasti Verkhnezelskoi ravniny i Ogoronskoi kotloviny].

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**Permafrost distribution, Permafrost structure, Lacustrine deposits, Swamps, Peat, Cryogenic textures, USSR—Zeya River.**

34-2927

**Morphology and temperature of recent perennially frozen rocks in the shore and shallow-water areas of northern Yenisey and Pyasina rivers.** [O morfologii i temperature sovremennykh mnogoletnemerzlykh porod na pribrezhnykh i melkovodnykh uchastkakh rek Eniseyskoi-Piasinskogo Severa].

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**Estuaries, Deltas, Subsea permafrost, Active layer, Frozen rock temperature, USSR—Yenisey River, USSR—Pyasina River.**

34-2928

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**Permafrost structure, Ground ice, Ice volume, Nomographs.**

34-2929

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**Permafrost structure, Ground ice, Permafrost hydrology, Naleds.**

34-2930

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**Karpov, E.G. Pingos, Ice composition, Chemical composition, Ice growth.**

34-2931

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34-2932

**Regime, balance and peculiarities of talik alimentation in Central Yakutian sandstone.** [O rezhime, balanse i osobennostiakh pitaniia mezhmerzlotnykh vod peschanykh massivov Tsentral'noi IAKutii].

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**Permafrost hydrology, Taliks, Sands, Alimentation.**

34-2933

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**Zhigalova, O.P. Permafrost hydrology, Taliks, Springs (water), Chemical composition.**

34-2934

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34-2935

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34-2936

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- 34-2999**  
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- 34-3002**  
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34-3014

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34-3015

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Offshore drilling, Sea ice distribution, Ice conditions, Ice drills, Cost analysis, Beaufort Sea.

34-3016

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Crude oil, Oil wells, Offshore drilling, Sea ice distribution, Iceberg towing.

34-3017

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Oil spills, Countermeasures, Subglacial observations, Environmental protection, Combustion.

34-3018

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Offshore drilling, Petroleum industry, Sea ice distribution, Ice conditions.

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34-3019

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Gas pipelines, Route surveys, Economic analysis.

34-3020

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Water reserves, Hydrology, Lake water, River flow, River ice, Thermal analysis, Freezup, Ice jams, Electric power, USSR—Angara River, USSR—Baykal Lake.

34-3021

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34-3022

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34-3023

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34-3024

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Transportation, Cargo, Mining.

34-3025

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Mining, Transportation, Explosives, Blasting, Permafrost.

34-3026

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Vlasov, V.M., Bondarenko, I.F., Fedin, A.F.

Mining, Boreholes, Blasting, Permafrost.

34-3027

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Taiga, Swamps, Landscape types, Paludification, Landscape development.

34-3028

Possible landscape changes in the Lower Irtysh River area. (O vozmozhnykh izmeneniyakh landshtaf-tov Nizhnego Priirtysh'ia).

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Skornikov, V.A., Timashev, I.E., Shcherbakova, L.N.

Landscape types, Permafrost hydrology, Taiga, Thermal regime, USSR—Irtys River.

34-3029

Changes in thermal conditions of landscapes in the monsoon-permafrost mountain taiga of the Central and Lower Amur River area. (Osobennosti landshtaf-tov termicheskoi differentsiatsii mussonno-merzlotnoi gornoi taigi Srednego i Nizhnego Priamur'ia).

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Mountains, Permafrost distribution, Taiga, Landscape types, Thermal regime, Baykal Amur railroad, Seasonal variations, Vegetation factors.

34-3030

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Ice jams, Ice formation, Ice breakup, Reservoirs, River ice, Frazil ice, Climate, United States—Colorado—Gunnison River.

34-3031

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34-3032

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Ice scoring, Sea ice, Bottom sediment, Ice erosion, Acoustic measuring instruments, Offshore structures, Sediment transport, Chukchi Sea.

34-3033

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Matveeva, N.V., ed

Deserts, Tundra, Cryogenic soils, Patterned ground, Landscape types, Vegetation, Ecosystems, Plant ecology, USSR—Taymyr Peninsula.

34-3034

Structure of vegetational cover in polar deserts of the Taymyr Peninsula (Cape Chelyuskin). (Struktura rastitel'nogo pokrova poliarnykh pustyni poluostrova Taymyr (mys Cheluskina)).

Matveeva, N.V., Arkticheskie tundry i poliarnye pustyni Taymyra (Arctic tundras and polar deserts of Taymyr Peninsula) edited by V.D. Aleksandrova and N.V. Matveeva, Leningrad, Nauka, 1979, p.5-27, In Russian. 14 refs.

Deserts, Tundra, Cryogenic soils, Patterned ground, Landscape types, Vegetation, Ecosystems, Plant ecology, USSR—Taymyr Peninsula.

34-3035

Microflora in polar desert soils of Cape Chelyuskin. (Mikroflora pochvy poliarnykh pustyni mysy Cheluskina).

Parinkina, O.M., Arkticheskie tundry i poliarnye pustyni Taymyra (Arctic tundras and polar deserts of Taymyr Peninsula) edited by V.D. Aleksandrova and N.V. Matveeva, Leningrad, Nauka, 1979, p.28-34, In Russian. 17 refs.

Desert soils, Soil microbiology, Soil formation, Polar regions, Vegetation factors, USSR—Chelyuskin Cape.

34-3036

Vascular plants of Cape Chelyuskin. (Sosudistye rasteniya mysy Cheluskina).

Safronova, I.N., Arkticheskie tundry i poliarnye pustyni Taymyra (Arctic tundras and polar deserts of Taymyr Peninsula) edited by V.D. Aleksandrova and N.V. Matveeva, Leningrad, Nauka, 1979, p.50-53, In Russian. 7 refs.

Cryogenic soils, Vegetation, Plant ecology, Tundra, Deserts, Arctic landscapes, USSR—Chelyuskin Cape.

34-3037

Musci and Hepaticae of Cape Chelyuskin. (Listo-tsel'nye i pechenochnye mshi mysy Cheluskina).

Blagodatskikh, L.S., et al, Arkticheskie tundry i poliarnye pustyni Taymyra (Arctic tundras and polar deserts of Taymyr Peninsula) edited by V.D. Aleksandrova and N.V. Matveeva, Leningrad, Nauka, 1979, p.54-60, In Russian. 7 refs.

Zhukova, A.L., Matveeva, N.V.

Deserts, Tundra, Mosses, Arctic landscapes.

34-3038

Ground lichens of Cape Chelyuskin. (Nepochvennye lishainiki mysy Cheluskina).

Pinn, T.Kh., Arkticheskie tundry i poliarnye pustyni Taymyra (Arctic tundras and polar deserts of Taymyr Peninsula) edited by V.D. Aleksandrova and N.V. Matveeva, Leningrad, Nauka, 1979, p.61-73, In Russian. 8 refs.

Deserts, Tundra, Lichens, Arctic landscapes.

34-3039

Some chemical properties of Cap. Chelyuskin soils. (Nekotorye khimicheskie svoystva pochvy mysy Cheluskina).

Chugunova, M.V., Arkticheskie tundry i poliarnye pustyni Taymyra (Arctic tundras and polar deserts of Taymyr Peninsula) edited by V.D. Aleksandrova and N.V. Matveeva, Leningrad, Nauka, 1979, p.74-77, In Russian. 11 refs.

Cryogenic soils, Soil composition, Soil chemistry, Arctic landscapes, USSR—Chelyuskin Cape.

34-3040

Vegetation in the vicinity of Marii Pronchishchev Bay (Northeastern Taymyr Peninsula). (Flora i rastitel'nost' okrestnostei bukhty Marii Pronchishchev (severo-vostochnyi Taymyr)).

Matveeva, N.V., Arkticheskie tundry i poliarnye pustyni Taymyra (Arctic tundras and polar deserts of Taymyr Peninsula) edited by V.D. Aleksandrova and N.V. Matveeva, Leningrad, Nauka, 1979, p.78-109, In Russian. 24 refs.

Deserts, Tundra, Landscape types, Plant ecology, Alpine landscapes, Biomass, Arctic landscapes, USSR—Taymyr Peninsula.



34-3041

**Microflora of Arctic tundra soils in the northeastern part of the Taymyr Peninsula.** (K kharakteristike mikrofloory pochv arkticheskikh tundr severo-vostochnoi chasti Taymyra). Parinkina, O.M., Arkticheskie tundry i poliarnye pustyni Taymyra (Arctic tundras and polar deserts of Taymyr Peninsula) edited by V.D. Aleksandrova and N.V. Matveeva, Leningrad, Nauka, 1979, p.110-117, In Russian. 4 refs.  
Tundra, Cryogenic soils, Soil microbiology, Arctic landscapes.

34-3042

**Vegetation on specific thermokarst relief in the vicinity of Marii Prionchishchev Bay (Northeastern Taymyr Peninsula).** (Rastitel'nost' baldzharakhov s okrestnostakh bukhty Marii Prionchishchev (severo-vostochnyi Taymyr)). Samina, O.I., Arkticheskie tundry i poliarnye pustyni Taymyra (Arctic tundras and polar deserts of Taymyr Peninsula) edited by V.D. Aleksandrova and N.V. Matveeva, Leningrad, Nauka, 1979, p.118-132, In Russian. 7 refs.  
Thermokarst, Permafrost structure, Ice veins, Cryogenic soils, Vegetation, Arctic landscapes.

34-3043

**Musci and Hepaticae in the vicinity of Marii Prionchishchev Bay (Northeastern Taymyr Peninsula).** (K flore listostebel'nykh i pechenochnykh mkhov okrestnostei bukhty Marii Prionchishchev (severo-vostochnyi Taymyr)). Blagodat'skikh, L.S., et al., Arkticheskie tundry i poliarnye pustyni Taymyra (Arctic tundras and polar deserts of Taymyr Peninsula) edited by V.D. Aleksandrova and N.V. Matveeva, Leningrad, Nauka, 1979, p.133-139, In Russian. 9 refs.  
Zhukova, A.L., Matveeva, N.V.  
Deserts, Tundra, Mosses, Arctic landscapes.

34-3044

**Ground lichens in the vicinity of Marii Prionchishchev Bay (Northeastern Taymyr Peninsula).** (Napochyennye lishainiki okrestnostei bukhty Marii Prionchishchev (severo-vostochnyi Taymyr)). Poin, T.Kh., Arkticheskie tundry i poliarnye pustyni Taymyra (Arctic tundras and polar deserts of Taymyr Peninsula) edited by V.D. Aleksandrova and N.V. Matveeva, Leningrad, Nauka, 1979, p.140-143, In Russian. 1 ref.  
Lichens, Plant ecology, Ecosystems, Arctic landscapes.

34-3045

**Latitudinal variations in the proportions of living vascular plants in Taymyr Peninsula.** (Shirotnye zmeneniya sostoyneniya zhivnykh form sosudistykh rastenii na Taymyre). Polozova, T.G., Arkticheskie tundry i poliarnye pustyni Taymyra (Arctic tundras and polar deserts of Taymyr Peninsula) edited by V.D. Aleksandrova and N.V. Matveeva, Leningrad, Nauka, 1979, p.154-159, In Russian. 6 refs.  
Deserts, Tundra, Cryogenic soils, Vegetation, Plant ecology, Arctic landscapes.

34-3046

**Productivity of Taymyr soil microflora as a criterion of biologic activity.** (Produktivnost' mikroflory pochv Taymyra kak kriterii ikh biologicheskoi aktivnosti). Parinkina, O.M., Arkticheskie tundry i poliarnye pustyni Taymyra (Arctic tundras and polar deserts of Taymyr Peninsula) edited by V.D. Aleksandrova and N.V. Matveeva, Leningrad, Nauka, 1979, p.160-165, In Russian. 12 refs.  
Tundra, Soil formation, Soil microbiology, Bacteria, Arctic landscapes.

34-3047

**Regularities governing zonal distribution of communities in Taymyr Peninsula.** (Zakonomernosti zonal'nogo raspredeleniya soobshchestv na Taymyre). Chernov, I.U., et al., Arkticheskie tundry i poliarnye pustyni Taymyra (Arctic tundras and polar deserts of Taymyr Peninsula) edited by V.D. Aleksandrova and N.V. Matveeva, Leningrad, Nauka, 1979, p.166-200, In Russian. 56 refs.  
Matveeva, N.V.  
Deserts, Tundra, Forest tundra, Animals, Plants (botany), Plant ecology, Cryogenic soils, Arctic landscapes, USSR—Taymyr Peninsula.

34-3048

**Environmental assessment of the Alaskan continental shelf, Vol.5, Receptors—Microbiology; Contaminant baselines.** Boulder, Colorado, Outer Continental Shelf Environmental Assessment Program, Oct. 1979, 698p., Principal investigators' annual reports for the year ending March 1979. Numerous refs. passim.  
Oceanography, Microbiology, Marine biology, Oil spills, Water pollution, Bottom sediment, Sea water, Environmental impact, Hydrocarbons.

34-3049

**Environmental assessment of the Alaskan continental shelf, Vol.6, Effects.** Boulder, Colorado, Outer Continental Shelf Environmental Assessment Program, Oct. 1979, 664p., Principal investigators' annual reports for the year ending March 1979. Numerous refs. passim.  
Oil spills, Marine biology, Environmental impact, Sea water, Ecology, Oceanography, Animals, Water pollution.

34-3050

**Environmental assessment of the Alaskan continental shelf, Vol.7, Transport.** Boulder, Colorado, Outer Continental Shelf Environmental Assessment Program, Oct. 1979, 560p., Principal investigators' annual reports for the year ending March 1979. Numerous refs. passim. For selected report see 34-3051.  
Oceanography, Oil spills, Sea ice, Ice mechanics, Ocean currents, Liquid solid interfaces, Marine meteorology, Tides, Data processing.

34-3051

**Dynamics of near-shore ice.** Kovacs, A., et al., MP 1291, Environmental assessment of the Alaskan continental shelf, Vol. 7, Transport. Principal investigators' annual reports for the year ending March 1979, Boulder, Colorado, Outer Continental Shelf Environmental Assessment Program, Oct. 1979, p.181-207, 2 refs.  
Weeks, W.F.  
Ice mechanics, Sea ice, Ice cover thickness, Ice structure, Ice crystals, Pressure ridges, Remote sensing, Fast ice, Pack ice.

34-3052

**Environmental assessment of the Alaskan continental shelf, Vol.8, Transport.** Boulder, Colorado, Outer Continental Shelf Environmental Assessment Program, Oct. 1979, 588p., Principal investigators' annual reports for the year ending March 1979. Numerous refs. passim. For selected reports see 34-3053 and 34-3054.

**Oceanography, Hydrodynamics, Oil spills, Sea ice distribution, Subglacial observations, Petroleum transportation, Ice mechanics, Fast ice, Meteorological factors.**

34-3053

**Oil pooling under sea ice.** Kovacs, A., MP 1289, Environmental assessment of the Alaskan continental shelf, Vol.8, Transport. Principal investigators' annual reports for the year ending March 1979, Boulder, Colorado, Outer Continental Shelf Environmental Assessment Program, Oct. 1979, p.310-323, 3 refs.  
Oil spills, Sea ice, Ice electrical properties, Bottom ice, Fast ice, Subglacial observations, Ocean currents, Anisotropy, Remote sensing, Echo sounding, Electromagnetic properties.

The object of the CRREL study is to: (a) determine the cause of the significant relief which exists under the fast ice, (b) measure the variations in the relief under fast ice, using electromagnetic echo sounding, (c) determine if the under-ice relief is a series of individual pockets or consists of long ridges, (d) estimate the quantity of oil which could pool up in the under-ice depressions should oil be released under the ice cover (e) use impulse radar to study the electromagnetic properties and anisotropy of sea ice. Initial results from using a polarized radar antenna in the air from the NOAA helicopter indicate that the c-axis anisotropy can be determined from the air. Because this anisotropy is related to current direction, it should be possible to measure, from an airborne platform, the current direction at the ice-water interface.

34-3054

**Anisotropic properties of sea ice in the 50-150 MHz range.** Kovacs, A., et al., Environmental assessment of the Alaskan continental shelf, Vol. 8, Transport. Principal investigators' annual reports for the year ending March 1979, Boulder, Colorado, Outer Continental Shelf Environmental Assessment Program, Oct. 1979, p.324-353, 4 refs.  
Morey, R.M.

**Sea ice, Ice electrical properties, Anisotropy, Ice crystal structure, Electromagnetic properties, Ocean currents, Remote sensing.**

Results of impulse radar studies of sea ice near Prudhoe Bay, Alaska, show that where there is a preferred current direction

under the ice cover, the crystal structure of the ice becomes highly ordered. This includes a crystal structure with a preferred horizontal c-axis that is oriented parallel with the local current. The radar studies show that this structure behaves as an anisotropic dielectric. The result is that when electromagnetic energy is radiated from a dipole antenna in which the E-field is oriented perpendicular with the c-axis azimuth, no bottom reflection is detected. It was also found that the frequency dispersion of anisotropic sea ice varies in the horizontal plane and is related to the average bulk brine volume of the ice. The bulk dielectric constant of the ice, as determined from impulse travel time, shows little correlation with the coefficient of anisotropy.

34-3055

**Environmental assessment of the Alaskan continental shelf, Vol.9, Hazards.** Boulder, Colorado, Outer Continental Shelf Environmental Assessment Program, Oct. 1979, 682p., Principal investigators' annual reports for the year ending March 1979. Numerous refs. passim. For selected reports see 34-3056 and 34-3057.

**Research projects, Sea ice, Subsea permafrost, Seismology, Ocean environments, Shoreline modification, Earthquakes.**

34-3056

**Delineation and engineering characteristics of permafrost beneath the Beaufort Sea.**

Sellmann, P.V., et al., MP 1287, Environmental assessment of the Alaskan continental shelf, Vol. 9, Hazards. Principal investigators' annual reports for the year ending March 1979, Boulder, Colorado, Outer Continental Shelf Environmental Assessment Program, Oct. 1979, p.93-115, 19 refs.

Chamberlain, E., Arcone, S.A., Blouin, S.E., Delaney, A.J., Neave, K.G.

**Subsea permafrost, Permafrost distribution, Bottom sediment, Boreholes, Temperature measurement, Engineering geology, Seismic surveys, Offshore drilling, Seasonal freeze thaw, Beaufort Sea.**

The objective of CRREL's subsea permafrost program is to obtain information on the distribution and properties of permafrost beneath the Beaufort Sea. We are currently acquiring information on the distribution of ice-bonded permafrost from analysis of the velocity structure of commercial seismic records. This report summarizes the results of all studies to date, including engineering property analysis and preliminary interpretation of seismic data. Emphasis is placed on results that are relevant to offshore development of this region. Discussion of the CRREL drilling and laboratory program represents the most current interpretation of these data.

34-3057

**Buried valleys as a possible determinant of the distribution of deeply buried permafrost on the continental shelf of the Beaufort Sea.**

Hopkins, D.M., et al., MP 1288, Environmental assessment of the Alaskan continental shelf, Vol. 9, Hazards. Principal investigators' annual reports for the year ending March 1979, Boulder, Colorado, Outer Continental Shelf Environmental Assessment Program, Oct. 1979, p.135-141, 15 refs.

Sellmann, P.V., Chamberlain, E., Lewellen, R.E., Robinson, S.W.

**Subsea permafrost, Permafrost distribution, Boreholes, Bottom sediment, River basins, Valleys, Beaufort Sea.**

34-3058

**Environmental assessment of the Alaskan continental shelf, Vol.10, Hazards, Data management.** Boulder, Colorado, Outer Continental Shelf Environmental Assessment Program, Oct. 1979, 517p., Principal investigators' annual reports for the year ending March 1979. Numerous refs. passim.

**Subsea permafrost, Bottom sediment, Sediment transport, Erosion, Seismic surveys, Geomorphology, Environmental impact, Remote sensing, Logistics, Data processing.**

34-3059

**"NIPR-I," a new plankton sampler under sea ice.** Fukuchi, M., et al., *Plankton Society of Japan. Bulletin*, Dec. 1979, 26(2), p.104-109, 6 refs.

Tanimura, A., Hoshiai, T.  
**Samplers, Plankton, Sea ice.**

A plankton sampler was devised to collect zooplankton under the sea ice. The sampler is composed of a cylindrical part (24 cm x 37.5 cm) and a conical plankton net (23 cm x 39 cm). A propeller and an electric motor which drives the propeller are installed inside the cylinder and the plankton net is attached at the posterior end of the cylinder. The planktoners are taken into the sampler by a current caused by the rotating propeller and filtered by the plankton net. The sampler is not towed, but is operated as it is suspended horizontally at desired depths under the sea ice. The sampler is of simple structure, inexpensive, light enough for one-man operation. The usefulness of this sampler was shown by the field observations in the Lützow-Holm Bay, Antarctica, and Lake Saroma, Hokkaido, Japan. The problems to be solved for the quantitative investigations are also identified. This sampler is named "NIPR-I". (Auth.)

- 34-3060**  
**Mystery flood solved.**  
Jackson, L.E., Jr., *Geos.* Summer 1979, p.2-4.  
**Mudflows, Subglacial drainage, Floods, Glacial lakes, Subglacial caves, Glacial hydrology, Glacier beds.**
- 34-3061**  
**Oil seep in the Arctic.**  
Mungall, C., *Geos.* Spring 1979, p.2-4.  
**Marine geology, Crude oil. Seepage.**
- 34-3062**  
**Drift ice features in the Cantapiscu.** [Le glacier du Cantapiscu].  
Laverdière, C., et al., *Geos.* Spring 1979, p.9-11. In French with English summary. Also available in English.  
Gumont, P.  
**Floating ice, Ice jams, Ice scoring, River ice.**
- 34-3063**  
**Deforestation of reservoirs.** [Le déboisement dans les réservoirs].  
Marcotte, H., et al., *Geos.* Spring 1979, p.15-17. In French with English summary. Also available in English.  
Soucy, A.  
**Tree (plant), Decomposition, Flooding, Ice pressure, Water waves.**
- 34-3064**  
**Late Quaternary history and the formation of sediments in the marginal and inland seas.** [Pozdnechetvertichnaia istoriia i sedimentogenez okrainnykh i vnutrennikh morei].  
Gershanovich, D.E., ed., Moscow, Nauka, 1979, 212p., In Russian. For selected articles see 34-3065 through 34-3068. Refs. passim.  
**Subsea permafrost, Permafrost distribution, Permafrost thickness, Permafrost transformation, Bottom sediment, Sedimentation, Marine deposits, Sediment transport, Ice conditions, Paleoclimatology, Glacial deposits, Arctic Ocean.**
- 34-3065**  
**Structure of the Pliocene-Quaternary deposits of the Barents Sea bottom along the Rybachiy Island-Franz Joseph Land cross section.** [Stroenie plitsen-chetvertichnoi tolshchi dna Barentseva moria na razreze: poluostr'ov Rybachil-ostrova Zemlia Frantsa Iosif].  
Blazhchishin, A.I., et al., *Pozdnechetvertichnaia istoriia i sedimentogenez okrainnykh i vnutrennikh morei* (Late Quaternary history and the formation of sediments in the marginal and inland seas) edited by D.E. Gershanovich, Moscow, Nauka, 1979, p.13-19. In Russian. 17 refs.  
Lin'kova, T.I., Kirillov, O.V., Shkatov, E.P.  
**Bottom sediment, Sedimentation, Marine deposits, Clays, Glacial deposits, Sediment transport, Arctic Ocean.**
- 34-3066**  
**Postglacial and Holocene paleogeography of the Barents Sea.** [K paleogeografii Barentseva moria v pozdnelednikov'e i golotsene].  
Kotenev, B.N., *Pozdnechetvertichnaia istoriia i sedimentogenez okrainnykh i vnutrennikh morei* (Late Quaternary history and the formation of sediments in the marginal and inland seas) edited by D.E. Gershanovich, Moscow, Nauka, 1979, p.20-28. In Russian. 18 refs.  
**Bottom sediment, Ice conditions, Paleogeology, Glacial deposits, Sedimentation, Marine sediments, Barents Sea.**
- 34-3067**  
**Evolution of late and postglacial sediment accumulation in offshore areas of the Barents and White seas.** [Evolutsiia osadkonakopleniia v pribrezhnykh raiionakh Barentseva i Belogo morei v pozdne- i poslelednikovoe vremia].  
Evzerov, V.I.A., *Pozdnechetvertichnaia istoriia i sedimentogenez okrainnykh i vnutrennikh morei* (Late Quaternary history and the formation of sediments in the marginal and inland seas) edited by D.E. Gershanovich, Moscow, Nauka, 1979, p.29-33. In Russian. 11 refs.  
**Sedimentation, Ice conditions, Paleoclimatology, Marine sediments, Glacial deposits, Polar regions, Barents Sea.**
- 34-3068**  
**Cryolithozone of the Asiatic Arctic shelf.** [Kriolitizona arkticheskogo shelfa Azii].  
Antipina, Z.N., et al., *Pozdnechetvertichnaia istoriia i sedimentogenez okrainnykh i vnutrennikh morei* (Late Quaternary history and the formation of sediments in the marginal and inland seas) edited by D.E. Gershanovich, Moscow, Nauka, 1979, p.183-189. In Russian. 12 refs.  
Are, F.E., Volchenko, V.V., Molochushkin, E.N.  
**Subsea permafrost, Permafrost distribution, Frozen rock temperature, Permafrost thickness, Permafrost depth, Permafrost transformation.**
- 34-3069**  
**Heat and mass transfer in low temperature thermal insulation installations.** [Teplo- i massopriem v nizkoteropurnykh teploizolatsionnykh konstrukt-siakh].  
Kaganer, M.G., Moscow, Energiia, 1979, 257p., In Russian with English table of contents enclosed. Refs. p.242-255.  
**Construction materials, Thermal insulation, Heat transfer, Mass transfer.**
- 34-3070**  
**Design of casing programs.** [Proektirovanie konstrukt-sii skazhiny].  
Bulatov, A.I., et al., Moscow, Nedra, 1979, 280p. (Per-tinent p.85-91, 135-141). In Russian with abridged English table of contents enclosed. 142 refs.  
Izmailov, L.B., Lebedev, O.A.  
**Petroleum industry, Wells, Drilling, Well casings, Design, Permafrost.**
- 34-3071**  
**Thermal abrasion of seashores.** [Termoabrazia morskikh beregov].  
Are, F.E., Moscow, Nauka, 1980, 159p., In Russian with English table of contents enclosed. Refs. p.147-158.  
**Shore erosion, Abrasion, Subsea permafrost, Permafrost distribution, Permafrost structure, Permafrost transformation, Polar regions, Marine geology, Bibliographies.**
- 34-3072**  
**Snow avalanches in Zailiyskiy and Dzhangarskiy Alatau.** [Snezhnye laviny Zailiyskogo i Dzhungarskogo Alatau].  
Severskii, I.V., Alma-Ata, Nauka, 1978, 256p., In Russian with English table of contents enclosed. Refs. p.246-255.  
**Avalanches, Snow cover distribution, Snow cover structure, Snow cover stability, Avalanche formation, Avalanche triggering, Avalanche forecasting, USSR—Zailiyskiy Alatau, USSR—Dzhungarskiy Alatau.**
- 34-3073**  
**Naleds and countermeasures.** [Naledi i bor'ba s nimi].  
Shushakov, E.V., Moscow, Transport, 1979, 64p., In Russian with English table of contents enclosed. 5 refs.  
**Naleds, Culverts, Permafrost hydrology, Bridges, Permafrost beneath structures, Icing rate, Ice loads, Baykal Amur railroad, Classifications, Railroad tracks.**
- 34-3074**  
**Peculiarities of land reclamation in West Siberia.** [Osobennosti melioratsii zemel' Zapadnoi Sibiri].  
Panin, P.S., ed., Novosibirsk, Nauka, 1979, 252p., In Russian. For selected papers see 34-3075 through 34-3082. Refs. passim.  
**Land reclamation, Swamps, Permafrost structure, Cryogenic soils, Taiga, Landscape types, Thermal regime.**
- 34-3075**  
**West Siberia as an object of land reclamation.** [Zapadnaia Sibir' kak ob'ekt melioratsii].  
Panin, P.S., et al., *Osobennosti melioratsii zemel' Zapadnoi Sibiri* (Peculiarities of land reclamation in West Siberia) edited by P.S. Panin, Novosibirsk, Nauka, 1979, p.3-4. In Russian. 15 refs.  
**Land reclamation, Swamps, Permafrost depth, Permafrost structure, Cryogenic soils, Drainage.**
- 34-3076**  
**Possible changes in thermal conditions due to land reclamation.** [Teplovyie usloviia i ikh vozmozhnye izmeneniia pri gidromelioratsiakh].  
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Voronina, L.V., Guliaev, O.S.  
**Land reclamation, Swamps, Drying, Deserts, Irrigation, Taiga, Cryogenic soils, Thermal regime, Steppes, Climatic factors.**
- 34-3077**  
**Land subject to reclamation in the south of the West Siberian Plain.** [Melioriruemaia tolshcha iuga Zapadno-Sibirskoi ravniny].  
Uglanov, I.N., *Osobennosti melioratsii zemel' Zapadnoi Sibiri* (Peculiarities of land reclamation in West Siberia) edited by P.S. Panin, Novosibirsk, Nauka, 1979, p.25-76. In Russian. 73 refs.  
**Land reclamation, Swamps, Forest land, Paludification, Cryogenic soils, Discontinuous permafrost, Bibliographies.**
- 34-3078**  
**Physical properties of soils and forecasting of their changes in reclaimed lands.** [Fizicheskie svoistva pochvy i prognoz ikh izmeneniia na melioriruemoi terri-torii].  
Panfilov, V.P., et al., *Osobennosti melioratsii zemel' Zapadnoi Sibiri* (Peculiarities of land reclamation in West Siberia) edited by P.S. Panin, Novosibirsk, Nauka, 1979, p.77-101. In Russian. 15 refs.  
Chasichina, N.T., Lashina, M.M.  
**Land reclamation, Taiga, Landscape types, Cryogenic soils, Physical properties.**
- 34-3079**  
**Forecasting soil erosion development in the agricultural zone of West Siberia.** [Erozia pochvy i prognoz ee razvitiia v zemledel'cheskoi zone Zapadnoi Sibiri].  
Orlov, A.D., *Osobennosti melioratsii zemel' Zapadnoi Sibiri* (Peculiarities of land reclamation in West Siberia) edited by P.S. Panin, Novosibirsk, Nauka, 1979, p.101-113. In Russian. 10 refs.  
**Forest land, Steppes, Cryogenic soils, Soil erosion, Frost penetration, Snow cover effect.**
- 34-3080**  
**Regionalization of the southern West Siberian Plain for land reclamation.** [Meliorativnoe raionirovanie iuga Zapadno-Sibirskoi ravniny].  
Uglanov, I.N., et al., *Osobennosti melioratsii zemel' Zapadnoi Sibiri* (Peculiarities of land reclamation in West Siberia) edited by P.S. Panin, Novosibirsk, Nauka, 1979, p.116-133. In Russian. 20 refs.  
Panin, P.S.  
**Land reclamation, Swamps, Deserts, Saline soils, Cryogenic soils, Permafrost hydrology, Discontinuous permafrost, Mapping.**
- 34-3081**  
**Hydrochemical runoff and the intensity of soil salinization in West Siberia.** [Gidrokhimicheskiy stok i intensivnost' zasoleniia pochvy Zapadnoi Sibiri].  
Panin, P.S., *Osobennosti melioratsii zemel' Zapadnoi Sibiri* (Peculiarities of land reclamation in West Siberia) edited by P.S. Panin, Novosibirsk, Nauka, 1979, p.141-170. In Russian. 19 refs.  
**River basins, Taiga, Water chemistry, Saline soils, Soil chemistry, Frost penetration, Snow cover effect.**
- 34-3082**  
**Seasonal moisture exchange dynamics between ground waters and the aeration zone of Kulunda Steppe.** [Sezonnaia dinamika vlagooobmena mezhdu gruntovymi vodami i zonoj aeratsii v Kulundinskoi stepi].  
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**Steppes, Cryogenic soils, Saline soils, Frost penetration, Ground water, Alimentation, Snowmelt.**
- 34-3083**  
**Icing nozzle element optimization test, January 1979.**  
Delgado, L.V., *U.S. Air Force Geophysics Laboratory. Technical report*, Aug. 20, 1979, AFGL-TR-79-0193, 370p., ADA-081 175, 3 refs.  
**Aircraft icing, Cloud physics, Spectroscopy, Climatic factors, Tests.**
- 34-3084**  
**Computer simulation of Great Lakes-St. Lawrence Seaway icebreaker requirements.**  
Kotras, T.V., et al., *U.S. Coast Guard. Report*, Jan. 1980, CG-D-56-79, 195p., ADA-082 164, 13 refs.  
Peter, J.J.  
**Icebreakers, Ice navigation, Computerized simulation.**
- 34-3085**  
**Ice-release coating for disconnect switches.**  
Mundon, J.L., *Electric power Research Institute, Palo Alto, California. Report*, Mar. 1980, EL-1330, 24p.  
**Ice adhesion, Countermeasures, Protective coatings, Polymers, Electric switches, Tests.**

34-3086

Russian winter pipeline construction techniques. Sanders, W.M., *Oil and gas journal*, Apr. 21, 1980, 78(16), p.59-66, 71.  
Hot oil lines, Permafrost beneath structures, Underground pipelines, Cold weather construction, Logistics, Snow roads, Hydrocarbons, Design criteria.

34-3087

Effect of ice-albedo feedback on global sensitivity in a one-dimensional radiative-convective climate model. Wang, W.-C., et al., *Journal of the atmospheric sciences*, Mar. 1980, 37(3), p.545-552, 19 refs.  
Stone, P.H.  
Ice physics, Albedo, Climate, Models, Air temperature, Heat balance, Radioactivity, Convection, Carbon dioxide.

34-3088

Melting and surface runoff from the Antarctic ice sheet. [Taianie i zhidkii stok s poverkhnosti lednikovogo pokrova Antarktidy]. Klokov, V.D., Leningrad, Gidrometeoizdat, 1979, 128p. In Russian with English table of contents enclosed. 143 refs.  
Ice sheets, Runoff, Glacier ablation, Heat balance, Glacier heat balance, Antarctica.  
Results of the most recent studies of melting conditions and runoff around the periphery of Antarctica are reviewed. Particular interest attaches to work done in 1969-70 and 1972-73 in Enderby Land in the Molodetzhnaya area. A method of determining runoff area is proposed; the structure of heat balance of the melting ice surface discussed; a quantitative assessment of runoff volume done; and recommendations for runoff exploitation offered.

34-3089

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34-3123

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- 34-3151**  
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Ice sheets, Ice cores, Ice dating, Aerosols, Dust, Condensation nuclei, Ice crystal growth, Antarctica—Byrd Station.  
The significance of soluble and insoluble microparticles and oxygen isotopes for paleoclimatological studies is discussed. Concentration, size distribution and composition of dust were studied in drill cores from the antarctic ice sheet. Electron microscope investigations of snow crystals revealed aerosol distribution, with larger sizes in centers and smaller ones dispersed throughout the crystals; the smaller the condensation nuclei sizes, the larger their quantities. Cyclic variations of dust particle concentrations were observed in Byrd Station samples. It is suggested that this cyclicity can be used in snow-ice stratigraphy problems.
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- 34-3156**  
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DLC TF4.N662, Vyp.181  
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Postnikov, P.M.  
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- 34-3205**  
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Ice conditions, Sea water freezing, Ice edge, Brines, Salinity, Air temperature, Water temperature, Ice formation, USSR—Caspian Sea.
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Sokolov, B.L.  
Naleds, Classifications, Aerial surveys, Spaceborne photography, Ice cover thickness, Radar echoes, Origin.

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**Working with concrete (technology and organization).**  
Baitskii, V.S., et al. *U.S. Army Foreign Science and Technology Center. Translation*, Feb. 1980, FSTC-HT-256-78, 350p., Translation of *Betonnye raboty* (Tekhnologiya i organizatsiya), Kiev, Budivelnik, 1977, 240p., 54 refs.  
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Concrete placing, Concrete curing, Concrete admixtures, Frost action, Frost resistance, Heating, Concrete strength, Winter concreting.
- 34-3191**  
**Studies on interaction between wind and dry snow surfaces.**  
Kobayashi, S., *Hokkaido University, Sapporo, Japan. Institute of Low Temperature Science. Contribution Series A*, 1979, No.29, 64p., Refs. p.61-64.  
**Snow surface, Ice surface, Wind factors, Wind velocity, Topography, Drift, Erosion, Snow air interface, Boundary layer, Antarctica—Mizuho Plateau.**  
Interaction between the wind and the surface of dry snow and bare ice has been studied by analyzing systematic and quantitative data obtained from field and laboratory researches on the formation of snow waves, which represent one of a variety of deposition erosion patterns (waves, ripples, barchans, sastrugi, dunes, pits, etc.) formed on a snowfield, as a wind redistributes a surface layer of deposited snow. Profiles of wind speed were obtained from measurements in the lower surface layer, where snow drifts over dry snow and bare ice surfaces, in Hokkaido, Japan, and in Mizuho Plateau, East Antarctica. A helicoidal stream around an obstruction (two small huts) was observed by trajectories of smoke and drifting snow particles. When a wind stream encountered an obstacle or a surface irregularity, its boundary layer was separated and turbulent waves were formed around it. Deposition and erosion are discussed in connection with local eddy patterns. (Auth. mod.)
- 34-3192**  
**Offshore pipelines in the Arctic.**  
Timmermans, W.J., *Pipeline and gas journal*, Apr. 1980, 207(4), p.20-24.  
**Offshore structures, Pipe laying, Ice conditions, Subsea permafrost, Artificial islands, Tunnels, Ice islands.**
- 34-3193**  
**Offshore innovations. Pipeline and gas journal.** Apr. 1980, 207(4), p.25-28, 34.  
**Offshore structures, Pipe laying, Pipeline freezing, Ocean bottom, Maintenance, Flexural strength.**
- 34-3194**  
**Bedrock freeze-thaw weathering regime in an alpine environment, Colorado Front Range.**  
Thorn, C.E., *Earth surface processes*, July-Sep. 1979, 4(3), p.211-228, 33 refs.  
**Frozen rocks, Frost weathering, Freeze thaw cycles, Alpine landscapes, Air temperature, Seasonal variations, Geomorphology.**
- 34-3195**  
**Sorted strips orientated by wind action: some observations from sub-Antarctic Marion Island.**  
Hall, K., *Earth surface processes*, July-Sep. 1979, 4(3), p.281-289, 14 refs.  
**Ice needles, Frost action, Rock weathering, Glacial deposits, Periglacial processes, Wind factors, Marion Island.**  
Sorted strips found on the volcanic scoria and glacial deposits of Subantarctic Marion Island indicate a distinct preferred orientation. Despite uniformity of slope and material, the strips are predominantly aligned parallel to the wind. It is suggested that melting of needle ice by the early morning sun is of only limited importance in the Subantarctic, owing to the almost continual overcast conditions. The effect of the wind is so great that in exposed situations strips are formed on horizontal surfaces. (Auth.)
- 34-3196**  
**Recommendations for the design and construction of tailings dumps under severe climatic conditions.**  
[Rekomendatsii po proektirovaniu sooruzhenii khvostokhranilishch v surovyykh klimaticheskikh usloviyakh]. Moscow. Vsesoiuznyi nauchno-issledovatel'skii institut vodosnabzheniya, kanalizatsii, gidrotekhnicheskikh sooruzhenii i inzhenernoi gidrologii, Moscow, 1977, 152p., In Russian with English table of contents enclosed.
- Mining, Earth dams, Tailings, Embankments, Permafrost beneath structures, Slurry ponds.**
- 34-3197**  
**Effectiveness of using mineral raw materials in the Far North.** [Effektivnost' ispol'zovaniya mineral'nogo syr'ya v usloviyakh Krainego Severa]. Fedoseev, V.A., *Leningrad, Nauka*, 1979, 215p., In Russian with abridged English table of contents enclosed. 138 refs.  
**Economic development, Mining, Construction materials, Minerals, Fuels, Transportation.**
- 34-3198**  
**Environmental analysis of the Upper Susitna River Basin using Landsat imagery.**  
Gatto, L.W., et al. *U.S. Army Cold Regions Research and Engineering Laboratory*, Jan. 1980, CR 80-4, 41p., ADA-084 900, 52 refs.  
Merry, C.J., McKim, H.L., Lawson, D.E.  
**Aerial surveys, Remote sensing, Spaceborne photography, LANDSAT, Mapping, Photointerpretation, Spacecraft, River basins, Environments, United States—Alaska—Susitna River.**  
The primary objectives of this study were to 1) prepare a map from Landsat imagery of the Upper Susitna River Basin drainage network, lakes, glaciers and snowfields, 2) identify possible faults and lineaments within the upper basin and within a 100-km radius of the proposed Devil Canyon and Watana dam sites as observed on Landsat imagery, and 3) prepare a Landsat-derived map showing the distribution of surficial geologic materials and poorly drained areas. The EROS Digital Image Enhancement System (EDIES) provided computer-enhanced images of Landsat-1 scene 5470-19560. The EDIES false color composite of this scene was used as the base for mapping drainage network, lakes, glaciers and snowfields, six surficial geologic materials units and poorly drained areas. Some single-band and other color composites of Landsat images were used during interpretation. All the above maps were prepared by photointerpretation of Landsat images without using computer analysis, aerial photographs, field data, or published reports.
- 34-3199**  
**Analysis of the performance of a 140-foot Great Lakes icebreaker: USCGC Katmai Bay.**  
Vance, G.P., *U.S. Army Cold Regions Research and Engineering Laboratory*, Feb. 1980, CR 80-8, 28p., ADA-084 736, 8 refs.  
**Icebreakers, Bubbles, Protective coatings, Ice cover thickness, Ice friction, Ice strength.**  
This report presents the results of the tests on the new U.S. Coast Guard 140-ft icebreaker Katmai Bay (WTGB-101) in the level plate ice and brash ice in Whitefish Bay and the St. Marys River. The results indicate that the vessel can penetrate 22 in. of level freshwater ice with 2-3 in. of snow cover. It can also penetrate up to 48 in. of brash ice in a continuous mode and at least 30 in. of plate ice by backing and ramming. The installed bubbler system decreased the required power of the vessel from 10 to 30% in brash ice and 25 to 35% in level ice. The low friction coating appears to be effective in decreasing the friction factor when it remains intact; when it peels off, it appears to make conditions worse than plain paint. An average dynamic friction factor of 0.15 could be used over the entire hull for these tests.
- 34-3200**  
**Mathematical model to correlate frost heave of pavements with laboratory predictions.**  
Berg, R.L., et al. *U.S. Army Cold Regions Research and Engineering Laboratory*, Feb. 1980, CR 80-10, 49p., ADA-084 737, 67 refs.  
Cuymon, G.L., Johnson, T.C.  
**Mathematical models, Frost heave, Frost penetration, Heat transfer, Soil water migration, Pavements, Computerized simulation, Laboratory techniques, Forecasting.**  
A mathematical model of coupled heat and moisture flow in soils has been developed. The model includes algorithms for phase change of soil moisture and frost heave and permits several types of boundary and initial conditions. The finite element method of weighted residuals (Galerkin procedure) was chosen to simulate the spatial regime, and the Crank-Nicholson method was used for the time domain portion of the model. To facilitate evaluation of the model, the heat and moisture fluxes were essentially decoupled; moisture flux was then simulated accurately, as were heat flux and frost heave in a laboratory test. Comparison of the simulated and experimental data illustrates the importance of unsaturated hydraulic conductivity. It is one parameter which is difficult to measure and for which only a few laboratory test results are available. Therefore, unsaturated hydraulic conductivities calculated in the computer model may be a significant source of error in calculations of frost heave. The algorithm incorporating effects of surcharge and overburden was inconclusively evaluated. Time-dependent frost penetration and frost heave in laboratory specimens were closely simulated with the model. After 10 days of simulation, the computed frost heave was about 2.3 cm vs 2.0 cm and 2.8 cm in two tests. Frost penetration was computed as 15 cm and was measured at 12.0 cm and 12.2 cm in the two laboratory samples after 10 days.
- 34-3201**  
**Seasonal cycle of snow cover, sea ice and surface albedo.**  
Robock, A., *Monthly weather review*, Mar. 1980, 108(3), p.267-285, 41 refs.  
**Remote sensing, Snow cover distribution, Sea ice distribution, Albedo, Mapping, Seasonal variations, Meltwater, Solar radiation, Surface temperature.**
- 34-3202**  
**Preliminary study of ice grown by droplet accretion using water-insoluble particles as tracer.**  
Prodi, F., et al. *Journal of applied meteorology*, Mar. 1980, 19(3), p.284-289, 13 refs.  
Nagamoto, C.T., Rosinski, J.  
**Ice growth, Cloud droplets, Ice accretion, Ice structure, Particles, Freezing, X ray analysis, Hailstone growth, Wind tunnels, Water pollution.**
- 34-3203**  
**Proceedings of the All-Union symposium on the rheology of soils, 2nd, Tsakhkadzor, Oct. 7-10, 1975.** [Trudy]. Vsesoiuznyi simpozium po reologii gruntov, 2nd, Tsakhkadzor, Oct. 7-10, 1975, Erevan, Izd-vo Erevanskogo Universiteta, 1976, 406p., In Russian. For selected see 34-3204 through 34-3225. Refs. passim.  
DLC TA710.A1V74  
**Clays, Clay soils, Tailings, Frozen fines, Deformation, Rheology, Frost penetration, Fracturing, Ground ice, Ice crystals, Ice physics.**
- 34-3204**  
**Theory of shearing creep of clay and its experimental confirmation.** [Teoriya polzuchesti gliny pri sdvige i ee eksperimental'noe podverzhenie]. Ter-Stepanian, G.I., Vsesoiuznyi simpozium po reologii gruntov, 2nd, Tsakhkadzor, Oct. 7-10, 1975, Trudy (Proceedings of the All-Union symposium on the rheology of soils, 2nd, Tsakhkadzor, Oct. 7-10, 1975), Erevan, Izd-vo Erevanskogo Universiteta, 1976, p.74-97, In Russian. 17 refs.  
DLC TA710.A1V74  
**Clays, Shear strength, Rheology, Creep.**
- 34-3205**  
**Shearing creep of clay soils due to vibration.** [Sdvigovaya vibropolzuchest' glinistogo grunta]. Badalian, R.G., et al. Vsesoiuznyi simpozium po reologii gruntov, 2nd, Tsakhkadzor, Oct. 7-10, 1975, Trudy (Proceedings of the All-Union symposium on the rheology of soils, 2nd, Tsakhkadzor, Oct. 7-10, 1975), Erevan, Izd-vo Erevanskogo Universiteta, 1976, p.117-127, In Russian. 5 refs.  
Meschian, S.R.  
DLC TA710.A1V74  
**Clay soils, Rheology, Vibration, Creep.**
- 34-3206**  
**Forecasting collapse of frozen rock slopes.** [Prognozirovaniye vremeni do obrusheniya otkosov merzlykh porod]. Vialov, S.S., et al. Vsesoiuznyi simpozium po reologii gruntov, 2nd, Tsakhkadzor, Oct. 7-10, 1975, Trudy (Proceedings of the All-Union symposium on the rheology of soils, 2nd, Tsakhkadzor, Oct. 7-10, 1975), Erevan, Izd-vo Erevanskogo Universiteta, 1976, p.143-151, In Russian. 4 refs.  
Bondarenko, G.I.  
DLC TA710.A1V74  
**Frozen ground, Tailings, Slope processes, Sliding, Frozen rocks.**
- 34-3207**  
**Studying static growth of cracks in sand at subzero temperatures.** [Issledovanie staticheskogo rosta treshchin v peske pri otnositel'noi temperature]. Grechishchev, S.E., Vsesoiuznyi simpozium po reologii gruntov, 2nd, Tsakhkadzor, Oct. 7-10, 1975, Trudy (Proceedings of the All-Union symposium on the rheology of soils, 2nd, Tsakhkadzor, Oct. 7-10, 1975), Erevan, Izd-vo Erevanskogo Universiteta, 1976, p.158-164, In Russian. 2 refs.  
DLC TA710.A1V74  
**Sands, Frost penetration, Frost action, Fracturing.**
- 34-3208**  
**Micromechanism of ice deformation under load.** [K voprosu o mikromekhanizme deformirovaniya l'da pod nagruzkoj]. Zaretskii, I.U.K., et al. Vsesoiuznyi simpozium po reologii gruntov, 2nd, Tsakhkadzor, Oct. 7-10, 1975, Trudy (Proceedings of the All-Union symposium on the rheology of soils, 2nd, Tsakhkadzor, Oct. 7-10, 1975), Erevan, Izd-vo Erevanskogo Universiteta, 1976, p.200-210, In Russian. 11 refs.  
Solomatin, V.I., Chumichev, B.D.  
DLC TA710.A1V74  
**Ice crystals, Ice crystal structure, Ice acoustics, Ice mechanics, Deformation.**

34-3209

**Determining creep parameters of weak clayey soils.** (K voprosu ob opredelenii parametrov polzuchesti slabykh glinistykh gruntov).

Karpov, V.M., Vsesoiuznyi simpozium po reologii gruntov, 2nd, Tsakhkadzor, Oct. 7-10, 1975, Trudy (Proceedings of the All-Union symposium on the rheology of soils, 2nd, Tsakhkadzor, Oct. 7-10, 1975), Erevan, Izd-vo Erevanskogo Universiteta, 1976, p.211-219, In Russian. 6 refs.

DLC TA710.A1V74

**Clay soils, Rheology, Creep.**

34-3210

**Creep as reflected in the numerical calculation of the stress-strain state of foundations.** (Otrazhenie polzuchesti v chislennom raschete napriazhenno-deformirovannogo sostoiannia osnovani).

Kryzhanovskii, A.L., et al, Vsesoiuznyi simpozium po reologii gruntov, 2nd, Tsakhkadzor, Oct. 7-10, 1975, Trudy (Proceedings of the All-Union symposium on the rheology of soils, 2nd, Tsakhkadzor, Oct. 7-10, 1975), Erevan, Izd-vo Erevanskogo Universiteta, 1976, p.220-227, In Russian. 10 refs.

Kulikov, G.V., Tsytovich, N.A.

DLC TA710.A1V74

**Frozen fines, Clays, Rheology, Deformation.**

34-3211

**Factors determining rheologic properties of clays.** (Faktory opredelivshiesia reologicheskie svoystva gornyykh porod).

Kul'chitskii, L.L., et al, Vsesoiuznyi simpozium po reologii gruntov, 2nd, Tsakhkadzor, Oct. 7-10, 1975, Trudy (Proceedings of the All-Union symposium on the rheology of soils, 2nd, Tsakhkadzor, Oct. 7-10, 1975), Erevan, Izd-vo Erevanskogo Universiteta, 1976, p.228-240, In Russian. 12 refs.

Bondarik, G.K.

DLC TA710.A1V74

**Clays, Rheology, Models.**

34-3212

**Collapse of fluid and semi-solid clay soils.** (Osobennosti razrusheniia glinistykh gruntov polutverdoti i tekuchet konsistentsii).

Maksimik, R.V., Vsesoiuznyi simpozium po reologii gruntov, 2nd, Tsakhkadzor, Oct. 7-10, 1975, Trudy (Proceedings of the All-Union symposium on the rheology of soils, 2nd, Tsakhkadzor, Oct. 7-10, 1975), Erevan, Izd-vo Erevanskogo Universiteta, 1976, p.241-246, In Russian. 1 ref.

DLC TA710.A1V74

**Clay soils, Plastic deformation, Plastic flow.**

34-3213

**Strength of clay soils in time.** (Priroda prochnosti glinistykh gruntov vo vremeni).

Maslov, N.N., et al, Vsesoiuznyi simpozium po reologii gruntov, 2nd, Tsakhkadzor, Oct. 7-10, 1975, Trudy (Proceedings of the All-Union symposium on the rheology of soils, 2nd, Tsakhkadzor, Oct. 7-10, 1975), Erevan, Izd-vo Erevanskogo Universiteta, 1976, p.247-255, In Russian.

Karaulova, Z.M.

DLC TA710.A1V74

**Clay soils, Sliding, Supports, Walls, Foundations, Piles.**

34-3214

**Compression creep of sagging ground.** (Kompresionnaia polzuchest' prosadochnykh gruntov).

Meschian, S.R., et al, Vsesoiuznyi simpozium po reologii gruntov, 2nd, Tsakhkadzor, Oct. 7-10, 1975, Trudy (Proceedings of the All-Union symposium on the rheology of soils, 2nd, Tsakhkadzor, Oct. 7-10, 1975), Erevan, Izd-vo Erevanskogo Universiteta, 1976, p.256-267, In Russian. 6 refs.

Badalian, R.G., Malakian, R.P.

DLC TA710.A1V74

**Clay soils, Compressive properties, Rheology, Settlement (structural).**

34-3215

**Skeleton creep of weak water-saturated clay soils.** (Polzuchest' skeleta slabykh vodonasyshchennykh gruntov).

Meschian, S.R., et al, Vsesoiuznyi simpozium po reologii gruntov, 2nd, Tsakhkadzor, Oct. 7-10, 1975, Trudy (Proceedings of the All-Union symposium on the rheology of soils, 2nd, Tsakhkadzor, Oct. 7-10, 1975), Erevan, Izd-vo Erevanskogo Universiteta, 1976, p.268-277, In Russian. 6 refs.

Galstian, R.R., Badalian, R.G.

DLC TA710.A1V74

**Clay soils, Soil water, Rheology, Creep.**

34-3216

**Determining stress relaxation in clayey grounds at shearing.** (O metodike opredeleniia relaksatsii napriazhenii v glinistykh gruntakh pri sdvige).

Meschian, S.R., et al, Vsesoiuznyi simpozium po reologii gruntov, 2nd, Tsakhkadzor, Oct. 7-10, 1975, Trudy (Proceedings of the All-Union symposium on the rheology of soils, 2nd, Tsakhkadzor, Oct. 7-10, 1975), Erevan, Izd-vo Erevanskogo Universiteta, 1976, p.278-282, In Russian. 3 refs.

Postolakiian, R.A.

DLC TA710.A1V74

**Clay soils, Shear stress, Relaxation (mechanics), Rheology.**

34-3217

**Influence of transient processes on bearing strength of piles in weak clayey grounds.** (Vliianie vremennykh protsessov na formirovanie nesushchei sposobnosti sval v slabykh glinistykh gruntakh).

Mets, M.A., Vsesoiuznyi simpozium po reologii gruntov, 2nd, Tsakhkadzor, Oct. 7-10, 1975, Trudy (Proceedings of the All-Union symposium on the rheology of soils, 2nd, Tsakhkadzor, Oct. 7-10, 1975), Erevan, Izd-vo Erevanskogo Universiteta, 1976, p.283-296, In Russian. 4 refs.

DLC TA710.A1V74

**Clay soils, Foundations, Piles, Bearing strength.**

34-3218

**Studying stress relaxations in water-saturated clayey soils.** (Issledovanie relaksatsii napriazhenii v vodonasyshchennom glinistom grunte).

Postolakiian, R.A., et al, Vsesoiuznyi simpozium po reologii gruntov, 2nd, Tsakhkadzor, Oct. 7-10, 1975, Trudy (Proceedings of the All-Union symposium on the rheology of soils, 2nd, Tsakhkadzor, Oct. 7-10, 1975), Erevan, Izd-vo Erevanskogo Universiteta, 1976, p.303-313, In Russian. 9 refs.

Meschian, S.R.

DLC TA710.A1V74

**Clay soils, Soil water, Relaxation (mechanics), Foundations, Settlement (structural).**

34-3219

**Studying the effect of loading regime on the strength of clay soils.** (Issledovanie vlianiia rezhima zagruzheniia na prochnost' glinistykh gruntov).

Sorokina, G.V., Vsesoiuznyi simpozium po reologii gruntov, 2nd, Tsakhkadzor, Oct. 7-10, 1975, Trudy (Proceedings of the All-Union symposium on the rheology of soils, 2nd, Tsakhkadzor, Oct. 7-10, 1975), Erevan, Izd-vo Erevanskogo Universiteta, 1976, p.314-321, In Russian. 5 refs.

DLC TA710.A1V74

**Clay soils, Plastic properties, Viscous flow, Soil strength.**

34-3220

**Univariate compaction of ground, allowing for viscoplastic deformations.** (Odnomernoe uplotnenie gruntov s uchetoм viazko-plasticheskikh deformatsii).

Ter-Martirosian, Z.G., Vsesoiuznyi simpozium po reologii gruntov, 2nd, Tsakhkadzor, Oct. 7-10, 1975, Trudy (Proceedings of the All-Union symposium on the rheology of soils, 2nd, Tsakhkadzor, Oct. 7-10, 1975), Erevan, Izd-vo Erevanskogo Universiteta, 1976, p.322-327, In Russian. 8 refs.

DLC TA710.A1V74

**Clays, Compressive properties, Soil compaction, Creep, Viscoelasticity, Plastic deformation.**

34-3221

**Studying wave processes in linear viscoelastic media under dynamic loads.** (Issledovanie volnovykh protsessov v lineinykh viazkoupругikh sredakh pri vozdeistvii dinamicheskikh nagruzok).

Filippov, I.G., Vsesoiuznyi simpozium po reologii gruntov, 2nd, Tsakhkadzor, Oct. 7-10, 1975, Trudy (Proceedings of the All-Union symposium on the rheology of soils, 2nd, Tsakhkadzor, Oct. 7-10, 1975), Erevan, Izd-vo Erevanskogo Universiteta, 1976, p.328-345, In Russian. 6 refs.

DLC TA710.A1V74

**Clays, Dynamic loads, Stresses, Analysis (mathematics).**

34-3222

**Nonlinear consolidation of clays allowing for aging.** (Nelineinaiia konsolidatsiia glin s uchetoм stareniia).

Tsytoich, N.A., et al, Vsesoiuznyi simpozium po reologii gruntov, 2nd, Tsakhkadzor, Oct. 7-10, 1975, Trudy (Proceedings of the All-Union symposium on the rheology of soils, 2nd, Tsakhkadzor, Oct. 7-10, 1975), Erevan, Izd-vo Erevanskogo Universiteta, 1976, p.346-351, In Russian. 12 refs.

Ter-Martirosian, Z.G., Nuridzhanian, S.Sh.

DLC TA710.A1V74

**Soil compaction, Clay soils, Peat, Soil water, Rheology, Compressive properties.**

34-3223

**Shearing creep mechanism at variable pore pressure.** (O mekhanizme polzuchesti sdviga pri peremennom porovom davlenii).

Tsytoich, N.A., et al, Vsesoiuznyi simpozium po reologii gruntov, 2nd, Tsakhkadzor, Oct. 7-10, 1975, Trudy (Proceedings of the All-Union symposium on the rheology of soils, 2nd, Tsakhkadzor, Oct. 7-10, 1975), Erevan, Izd-vo Erevanskogo Universiteta, 1976, p.352-359, In Russian. 7 refs.

Ter-Martirosian, Z.G., Nuridzhanian, S.Sh.

DLC TA710.A1V74

**Clay soils, Shear strength, Creep.**

34-3224

**Determining rheologic properties of perennially frozen hard fractured rocks.** (Nekotorye voprosy opredeleniia reologicheskikh svoystv vechnomerzlykh treschinovatykh skal'nykh porod).

Tsytoich, N.A., et al, Vsesoiuznyi simpozium po reologii gruntov, 2nd, Tsakhkadzor, Oct. 7-10, 1975, Trudy (Proceedings of the All-Union symposium on the rheology of soils, 2nd, Tsakhkadzor, Oct. 7-10, 1975), Erevan, Izd-vo Erevanskogo Universiteta, 1976, p.360-368, In Russian. 21 refs.

Kubetskii, V.L.

DLC TA710.A1V74

**Permafrost bases, Fracturing, Ground ice, Rheology.**

34-3225

**Calculating nonstationary flow rates of landslide-mudflows.** (Raschet skorosti nestatsionarnogo techeniia opolznel-potokov).

Shadunts, K.Sh., et al, Vsesoiuznyi simpozium po reologii gruntov, 2nd, Tsakhkadzor, Oct. 7-10, 1975, Trudy (Proceedings of the All-Union symposium on the rheology of soils, 2nd, Tsakhkadzor, Oct. 7-10, 1975), Erevan, Izd-vo Erevanskogo Universiteta, 1976, p.369-376, In Russian. 7 refs.

Kulikov, N.P.

DLC TA710.A1V74

**Slope processes, Landslides, Clays, Mudflows.**

34-3226

**Geosystems of the West Sayan foothills.** (Geosistemy predgorii Zapadnogo Saiana).

Antipov, A.N., et al, Novosibirsk, Nauka, 1979, 319p., In Russian with abridged English table of contents enclosed. Refs. p.304-313.

**Taiga, Landscape types, Cryogenic soils, Slope processes, Snow cover distribution, Forest canopy, Soil water migration, USSR—Sayan Mountains.**

34-3227

**Studying the structure of forest tundra landscapes as indicators of engineering and geological conditions for economic development in West Siberia.** (Izuchenie struktury prirodnykh kompleksov lesotundry dlia indikatsii inzhenerno-geokriologicheskikh uslovii v ratonakh khoziaistvennogo osvoeniia Zapadnoi Sibiri).

Moskalenko, N.G., et al, Znachenie biogeografii dlia melioratsii (Significance of biogeography for land reclamation) edited by A.G. Voronov and D.D. Vyshivkin, Moscow, 1979, p.88-100, In Russian. 5 refs.

Slavin-Borovskii, V.B., Ukrainitsa, N.G., Shchur, I.U.

**Forest tundra, Environmental protection, Human factors, Construction, Petroleum industry, Landscape types, Permafrost distribution, Permafrost hydrology.**

34-3228

**Introduction of indigenous plants in the northern Kola Peninsula.** (Introduktsiia rastenii prirodnoi flory na Kolskom Severe).

Andreev, G.N., Voprosy introduktsii rastenii na Kolskom Severe (Introduction of plants in the northern Kola Peninsula) edited by G.N. Andreev and L.M. Lukianova, Apatity, Akademiia nauk SSSR, 1979, p.3-14, In Russian. Refs. p.12-14.

**Introduced plants, Plant ecology, USSR—Kola Peninsula.**



34-3229

**Acclimatization of introduced plants and ways to hasten it in high latitudes.** (Akklmatizatsiya fitointroduktsentov i puti ee uskorennya v regionakh vysokikh shiro-  
t.)

Agapov, M.G. Voprosy introduktsii rastenii na Kol'skom Severe (Introduction of plants in the northern Kola Peninsula) edited by G.N. Andreev and L.M. Luk'yanova. Apatity, Akademiya nauk SSSR, 1979, p.15-25. In Russian. Refs. p.23-25.

**Introduced plants, Plant physiology, Plant ecology, USSR—Kola Peninsula.**

34-3230

**Significance of antarctic and subantarctic regions for plant introduction research.** (Znachenie antarkticheskikh i subantarkticheskikh raiionov dlia islei-  
troduktsii rastenii.)

Golovkin, B.N. Voprosy introduktsii rastenii na Kol'skom Severe (Introduction of plants in the northern Kola Peninsula) edited by G.N. Andreev and L.M. Luk'yanova. Apatity, Akademiya nauk SSSR, 1979, p.30-41. Russian. Refs. p.40-41.

**Introduced plants, Plant ecology.**

Plants of the subantarctic and antarctic areas hold great promise as potential species suitable for introduction in the Far North, since they are able to withstand harsh conditions. Some few on-  
side introduction studies have been done with such plants, these are reviewed here. Also, subantarctic and antarctic plants have been successfully cultivated in various botanical gardens and research stations in the Soviet Union and elsewhere. This research is also reviewed with the aim of identifying promising directions for future work.

34-3231

**Preliminary investigations of the kinetics of nitrogen transformation and nitrosamine formation in land treatment of wastewater.**

Jacobson, S., et al. *U.S. Army Cold Regions Research and Engineering Laboratory*, Mar. 1979, 58, 79-81, 59p., ADA-086 169, 94 refs.

Alexander, M.

**Waste disposal, Water treatment, Soil chemistry, Laboratory techniques.**

In laboratory experiments, denitrification of nitrate in wastewater proceeded slowly in an acid soil (pH 4.2), but the rate was fast in soils with pH values of 5.5 to 6.8. The rate of denitrification was governed by the carbon source added, with glucose supporting the fastest rate. The rate was somewhat slower with methanol and succinate and was appreciably slower with secondary effluents as the source of supplemental carbon. Chariton loam supported the more rapid denitrification with glucose as a carbon source, but the rate was higher in Windsor sandy loam with sewage as the carbon source. Denitrification in these soils did not occur at 10°C, and the rate increased with rising temperatures.

34-3232

**English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 2.**

International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978, Ottawa, Canada, National Research Council, Mar. 1980, 428p., Refs. passim. For individual papers see 34-3233 through 34-3259.

**Geocryology, Permafrost physics, Permafrost forecasting, Permafrost control, Soil chemistry, Subsea permafrost, Environmental protection, Engineering.**

34-3233

**Principles of cryolithological regionalization of the permafrost zone.**

Vtiurin, B.I., International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 2, Ottawa, Canada, National Research Council, Mar. 1980, p.1-9, 13 refs. For Russian original see 32-3730.

**Mapping, Permafrost structure, Charts, Cryogenic textures, Ground ice, Permafrost ice content.**

34-3234

**Terrain-forming processes in the permafrost region and the principles of their prevention and limitation in territories under development.**

Grave, N.A., et al. International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978.

English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 2, Ottawa, Canada, National Research Council, Mar. 1980, p.11-23, 22 refs. For Russian original see 32-3733.

**Geocryology, Solifluction, Frost weathering, Frost heave, Thermokarst, Permafrost transformation, Human factors.**

34-3235

**Hydrogeochemical investigations in permafrost studies.**

Anisimova, N.P., International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 2, Ottawa, Canada, National Research Council, Mar. 1980, p.25-41, 11 refs. For Russian original see 23-3736.

**Permafrost origin, Ground ice, Permafrost transformation, Permafrost hydrology, Water chemistry.**

34-3236

**Use of AC current surveys in permafrost studies.**

Avetikyan, H.A., International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 2, Ottawa, Canada, National Research Council, Mar. 1980, p.43-56, 4 refs. For Russian original see 32-3739.

**Permafrost physics, Electromagnetic prospecting, Measuring instruments.**

34-3237

**Forecast of changes in geocryological conditions during economic development of the permafrost region.**

Kudriavtsev, V.A., et al. International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 2, Ottawa, Canada, National Research Council, Mar. 1980, p.57-69. For Russian original see 32-3742.

**Permafrost transformation, Human factors, Permafrost forecasting, Economic development.**

34-3238

**Geocryological survey methods.**

Kudriavtsev, V.A., et al. International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 2, Ottawa, Canada, National Research Council, Mar. 1980, p.71-84. For Russian original see 32-3743.

**Geocryology, Surveys, Permafrost distribution, Permafrost structure, Economic development, Human factors, Permafrost transformation, Permafrost forecasting, Environmental protection.**

34-3239

**Electrical state of a permafrost cross section.**

Meinikov, V.P., et al. International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 2, Ottawa, Canada, National Research Council, Mar. 1980, p.85-102, 12 refs. For Russian original see 32-3745.

**Electromagnetic prospecting, Permafrost physics, Permafrost structure, Electrical properties, Geological cross sections.**

34-3240

**Thermal interaction of pipelines with the ground.**

Garagulia, L.S., et al. International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 2, Ottawa, Canada, National Research Council, Mar. 1980, p.103-116, 10 refs. For Russian original see 32-3750.

**Pipelines, Frozen ground temperature, Permafrost heat transfer, Seasonal freeze thaw.**

34-3241

**Present state of research on the freezing of rocks and construction materials.**

Agalovskiy, B., et al. International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 2, Ottawa, Canada, National Research Council, Mar. 1980, p.117-132, 62 refs. For French original see 32-3752.

**Soil freezing, Frost penetration, Construction materials, Freeze thaw cycles, Frozen rock temperature.**

34-3242

**Ice rich soils as bases for structures.**

Dokuchaev, V.V., et al. International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 2, Ottawa, Canada, National Research Council, Mar. 1980, p.133-147, 6 refs. For Russian original see 32-3757.

**Pile structures, Foundations, Settlement (structural), Permafrost beneath structures, Ground ice, Design.**

34-3243

**Problems and possibilities of studying the processes of dynamic relaxation in frozen earth materials.**

Frolov, A.D., International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 2, Ottawa, Canada, National Research Council, Mar. 1980, p.149-167, 18 refs. For Russian original see 32-3759.

**Ground ice, Frozen ground physics, Electrical properties, Relaxation spectroscopy.**

34-3244

**On the role of the components of frozen clay soils in the development of strength at different temperatures.**

Maksimuk, R.V., et al. International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 2, Ottawa, Canada, National Research Council, Mar. 1980, p.169-183, 15 refs. For Russian original see 32-3765.

**Shusherina, E.P., Rogov, V.V., Zabolotskaia, M.I. Frozen clays, Clay soils, Ground ice, Soil composition, Frozen ground strength, Microstructure.**

34-3245

**Kinetic theory of deformation of frozen soils.**

Vialov, S.S., International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 2, Ottawa, Canada, National Research Council, Mar. 1980, p.185-197, 5 refs. For Russian original see 32-3774.

**Frozen ground mechanics, Frozen ground temperature, Deformation, Creep properties, Analysis (mathematics).**

34-3246

**Permafrost investigations in pipeline construction.**

Baulin, V.V., et al. International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 2, Ottawa, Canada, National Research Council, Mar. 1980, p.199-212. For Russian original see 32-3777.

**Pipelines, Permafrost beneath structures, Surveying, Permafrost forecasting.**

34-3247

**Characteristics of the construction of frozen dams in Western Yakutia.**

Buanov, G.F., et al. International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 2, Ottawa, Canada, National Research Council, Mar. 1980, p.213-226, 1 ref. For Russian original see 32-3778.

**Hydraulic structures, Dams, Permafrost beneath structures, Permafrost control, Artificial freezing, USSR—Yakutia.**

34-3248

**Seasonally operating units and their use in northern construction.**

Buchko, N.A., et al. International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 2, Ottawa, Canada, National Research Council, Mar. 1980, p.227-240, 20 refs. For Russian original see 32-3779.

**Permafrost beneath structures, Permafrost control, Artificial freezing, Cooling systems.**

## 34-3249

**Construction of multi-storey buildings on cold piles in the city of Mirnyy.**

Makarov, V.I., et al, International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 2, Ottawa, Canada, National Research Council, Mar. 1980, p.241-254, 4 refs. For Russian original see 32-3784.

Plotnikov, A.A., Chumaevskii, B.F.

**Pile structures, Permafrost beneath structures, Foundations, Buildings, Frozen ground operation, Artificial freezing, Cooling systems, Thermopiles.**

## 34-3250

**Strength and stability of railway subgrades in permafrost regions.**

Peretrukhin, N.A., International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 2, Ottawa, Canada, National Research Council, Mar. 1980, p.255-267, 11 refs. For Russian original see 32-3788.

**Railroads, Embankments, Subgrade soils, Permafrost beneath structures, Design.**

## 34-3251

**Construction of earth embankments for highways in West Siberia.**

Popov, B.I., et al, International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 2, Ottawa, Canada, National Research Council, Mar. 1980, p.269-281. For Russian original see 32-3789.

**Roads, Embankments, Permafrost beneath structures, Pavements, Swamps, Peat, Thermal insulation, Cellular plastics.**

## 34-3252

**Construction by the method of stabilizing perennially frozen foundation soils.**

Porkhaev, G.V., et al, International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 2, Ottawa, Canada, National Research Council, Mar. 1980, p.283-296, 5 refs. For Russian original see 32-3790.

**Buildings, Foundations, Permafrost beneath structures, Active layer, Permafrost control, Artificial freezing, Thermopiles, Ventilation, Crawl spaces.**

## 34-3253

**Long-term settlement of foundations on permafrost.**

Vialov, S.S., International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 2, Ottawa, Canada, National Research Council, Mar. 1980, p.297-311, 4 refs. For Russian original see 32-3796.

**Foundations, Permafrost beneath structures, Frozen rock temperature, Settlement (structural), Tests.**

## 34-3254

**Hydrodynamic and hydrochemical assessment of explosions used in testing low-output wells in permafrost regions.**

Maksimov, V.M., International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 2, Ottawa, Canada, National Research Council, Mar. 1980, p.313-320, 8 refs. For Russian original see 32-3797.

**Water supply, Wells, Suprapermafrost ground water, Subpermafrost ground water, Blasting, Hydrodynamics, Water chemistry.**

## 34-3255

**Stability of underground workings in permafrost.**

El'chaninov, E.A., et al, International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 2, Ottawa, Canada, National Research Council, Mar. 1980, p.321-337, 2 refs. For Russian original see 32-3799.

**Earthwork, Mining, Frozen rock temperature, Temperature control, Shafts (excavations), Walls, Stability.**

## 34-3256

**Water thawing of frozen ground for open pit and underground mining in the northeast of the USSR.**

Emel'yanov, V.I., et al, International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 2, Ottawa, Canada, National Research Council, Mar. 1980, p.339-354, 15 refs. For Russian original see 32-3800.

Perlshteyn, G.Z.

**Earthwork, Artificial thawing, Mining, Ground thawing, Analysis (mathematics).**

## 34-3257

**Permafrost-hydrogeological zoning of eastern Siberia.**

Mel'nikov, P.I., et al, International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 2, Ottawa, Canada, National Research Council, Mar. 1980, p.355-378, 15 refs. For Russian original see 34-1680.

Tolstikhin, O.N.

**Permafrost distribution, Hydrogeology, Geocryology.**

## 34-3258

**Interaction between permafrost and buildings.**

Vialov, S.S., International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 2, Ottawa, Canada, National Research Council, Mar. 1980, p.379-406, 6 refs. For Russian original see 34-1683.

**Foundations, Deformation, Permafrost beneath structures, Piles, Thermal analysis.**

## 34-3259

**Design, construction and operation of earth dams in Arctic regions and under permafrost conditions.**

Tsytochik, N.A., et al, International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 2, Ottawa, Canada, National Research Council, Mar. 1980, p.407-428, 30 refs. For Russian original see 34-1684.

Kronik, I.A.A., Bilanov, G.F.

**Earth dams, Permafrost beneath structures, Cold weather construction.**

## 34-3260

**Nature and importance of mass-wasting by rock glaciers in alpine permafrost environments.**

Barsch, D., *Earth surface processes*, Apr.-Sep. 1977, 2(3), p.231-245, 34 refs.

**Rock glaciers, Alpine glaciation, Permafrost, Talus, Glacier mass balance, Glacier flow.**

## 34-3261

**Development of a laboratory set-up to measure creep induced by freeze-thaw cycles.**

Steijn, H. van, *Earth surface processes*, Apr.-Sep. 1977, 2(3), p.247-250, 12 refs.

**Soil creep, Freeze thaw cycles, Rheology, Frozen ground mechanics, Tests.**

## 34-3262

**Factors relating to the landslide process in Canadian Quickclays.**

Smalley, I., *Earth surface processes*, Apr.-June 1976, 1(2), p.163-172, 50 refs.

**Clay soils, Soil mechanics, Slope stability, Rheology, Quaternary glaciation, Postglacial soils.**

## 34-3263

**Simplified model for prediction of nitrogen behavior in land treatment of wastewater.**

Selim, H.M., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, Apr. 1980, CR 80-12, 49p., ADA-085 191, 23 refs.

Iskandar, I.K.

**Waste treatment, Water treatment, Nutrient cycle, Soil chemistry, Nitrogen.**

A simplified model for simulation of nitrogen transformations and transportation in land treatment of wastewater is presented. The purpose of the model is to predict the behavior of  $\text{NH}_4\text{-N}$  and  $\text{NO}_3\text{-N}$  in the soil profile in land treatment systems. The program is based on the solution of the transient soil water flow equation simultaneously with the equations describing the transformation, transport, and plant uptake of nitrogen in the soil. The program is valid for uniform as well as multilayered soil profiles and can be adapted to incorporate various nitrogen transformation mechanisms and boundary conditions. The model can be used as a tool to predict the fate of nitrogen in land treatment systems. Model sensitivity to changes in the rate of nitrification, ammonium ion exchange, and rate of plant uptake of nitrogen is also described. Description of the computer program, the program listing, and an example of input data and a two-week computer simulation of output data are presented.

## 34-3264

**Freezing temperature of aqueous solutions containing formamide, acetamide, propionamide and N,N-dimethylformamide.**

Lilley, T.H., et al, *Journal of physical chemistry*, 1980, 76(4), p.901-905, 8 refs.

Wood, R.H.

**Solutions, Freezing points, Thermodynamics, Enthalpy, Heat capacity.**

## 34-3265

**Design of concrete structures for thermal effects.**

Pajuhesh, J., *American Concrete Institute Journal*, Mar.-Apr. 1980, No.2, p.74-77, 3 refs.

**Concrete structures, Thermal effects, Relaxation (mechanics), Analysis (mathematics).**

## 34-3266

**Zero-energy house: bold, low-cost breakthrough that may revolutionize housing.**

Dallaire, G., *Civil engineering*, May 1980, 52(5), p.47-59, 5 refs.

**Thermal insulation, Houses, Heat loss.**

## 34-3267

**Natural waters, lithogenesis and relief. (Prudnye vody, porodoobrazovanie i rel'ef).**

Zorin, L.V., Moscow, Nauka, 1979, 167p., In Russian with English table of contents enclosed. Refs. p.155-166.

**Glacial deposits, Glacial erosion, Moraines, Sedimentation, Permafrost origin, Ground ice, Permafrost hydrology, Permafrost weathering, Glaciers.**

## 34-3268

**Gramma Lakes in the Baykal Amur railroad area. (Gramminskiye ozero v zone vlianiya rassy BAM).**

Mats, V.D., et al, Novosibirsk, Nauka, 1980, 87p., In Russian with English table of contents enclosed. 43 refs.

**Glacial deposits, Moraines, Glacial lakes, Limnology, Subglacial observations, Baykal Amur railroad, Alpine landscapes, Taiga, Alpine tundra, Plant ecology, USSR—Baykal Range.**

## 34-3269

**Manual for designing water supply and sewage systems in permafrost areas. (Spravochnik po projektirovaniyu sistem vodosnabzheniya i kanalizatsii v raiionakh vechnomerzlykh gruntov).**

Fedorov, N.F., et al, Leningrad, Stroizdat, 1979, 159p., In Russian with English table of contents enclosed. 22 refs.

Zaborshchikov, O.V.

**Manuals, Water treatment, Water supply, Waste disposal, Sewage, Sewage treatment, Pipelines, Pipe laying, Permafrost beneath structures, Design.**

## 34-3270

**Soil stabilization and water impervious screens in hydroelectric engineering. (Zakreplenie gruntov i protivofil'tratsionnyye zavesy v gidroenergeticheskoi stroitel'stve).**

Adamovich, A.M., Moscow, Energia, 1980, 319p., In Russian with English table of contents enclosed. 197 refs.

**Earth dams, Waterproofing, Artificial freezing, Winter concreting, Grouting, Electric power, Cold weather construction, Hydraulic structures, Dams, Concrete structures.**

## 34-3271

**Meteorological research.**

Borisenkov, E.P., ed, Washington, Translantics, July 1976, 133p., N76-27786. Translation of meteorologicheskii issledovaniia, No.20, 1975. For individual articles see F-23319 through F-23323 and I-23324, or 34-3272 through 34-3276. For Russian original see 9F-16958 through 9F-16962 and 9I-16963, or 30-3940 through 30-3944. Refs. passim.

**Sea ice distribution, Spacecraft, Antarctica.**

This collection of works contains material dealing with the utilization of meteorological satellites for the investigation of polar regions. In it, light is thrown on questions pertaining to the use of microwave equipment for investigating Atlantic ice and for determining the temperature of the underlying surface, the use of television equipment for the determination of cloud and ice fields in the Arctic and Antarctic regions, as well as for the comprehensive analysis of landscapes, the use of data on outgoing radiation for the determination of average-temperature fields and the restoration of aerological data, questions pertaining to identification and geographic control of the data (Auth.)

## 34-3272

**Antarctic ice characteristics according to Kosmos-243 satellite radiometric measurements.**

Matveev, D.T., Meteorological research, Washington, Translantics, July 1976, p.5-12, N76-27786. For Russian original see 9F-16958 or 30-3940.

**Sea ice distribution, Spacecraft, Radiometry, Antarctica.**

**34-3291**  
**Design of roads and railroads on natural bases in the southern permafrost distribution zone.** [Spol'zovanie estestvennykh osnovanii pri proektirovanii zemliannogo polotna zheleznynykh i avtomobil'nykh dorog v iuzhnoi zone rasprostraneniia mnogoletnemykh gruntov]. Potatueva, T.V., Okhrana okruzhaiushchel srede pri osvoinenii oblasti mnogoletnemykh porod (Environmental protection in economic development of permafrost areas) edited by N.A. Grave, Moscow, Nauka, 1980, p.84-90. In Russian.

**Design, Roadbeds, Embankments, Permafrost bases, Roads, Railroads.**

34-3292

**Environmental protection problems related to the construction of embankments and porous fills on permafrost.** [Voprosy okhrany okruzhaiushchey sredy v svyazi s ustroystvom nasypel i poristyykh podsypok na vechnomerzlykh gruntakh]. Kaganovskaia, S.E., Okhrana okruzhaiushchey sredy pri osvoenii oblasti mnogoletnemerzlykh porod (Environmental protection in economic development of permafrost areas) edited by N.A. Grave, Moscow, Nauka, 1980, p.90-94, In Russian. 4 refs.

**Swamps, Roads, Embankments, Rock fills, Permafrost beneath structures, Environmental protection.**

34-3293

**Influence of cities on natural and climatic factors under polar conditions.** [Vlianie goroda na prirodno-klimaticheskie faktory v usloviakh Zapol'nyia]. Gorbacheva, V.M., Okhrana okruzhaiushchey sredy pri osvoenii oblasti mnogoletnemerzlykh porod (Environmental protection in economic development of permafrost areas) edited by N.A. Grave, Moscow, Nauka, 1980, p.94-99, In Russian. 5 refs.

**Urban planning, Permafrost beneath structures, Buildings, Roads, Permafrost control, Human factors engineering.**

34-3294

**Influence of economic development on changes in environmental conditions of Arctic regions.** [Vlianie khoziaistvennoi deiatel'nosti na izmenenie prirodnykh usloviy arkticheskikh oblastey]. Neizvestnov, I.A.V., et al., Okhrana okruzhaiushchey sredy pri osvoenii oblasti mnogoletnemerzlykh porod (Environmental protection in economic development of permafrost areas) edited by N.A. Grave, Moscow, Nauka, 1980, p.100-102, In Russian. 2 refs.

**Human factors, Sewage disposal, Thermokarst development, Polar regions.**

34-3295

**Protecting rivers in the Kolyma Basin from pollution with solid suspensions by electrochemical coagulation treatment of mining waste waters.** [Zashchita rek basseina Kolymy ot zagriazneniya tverdyimi vzesiami (na primere oshchistki tekhnologicheskikh vod priiskov metodom elektrokhimicheskoi koagulyatsii)]. Novozhilov, V.N., et al., Okhrana okruzhaiushchey sredy pri osvoenii oblasti mnogoletnemerzlykh porod (Environmental protection in economic development of permafrost areas) edited by N.A. Grave, Moscow, Nauka, 1980, p.102-107, In Russian.

**Human factors engineering, Mining, Waste disposal, Water treatment, Water pollution, Subarctic landscapes.**

34-3296

**Cryogenic hydrogeochemical changes in alluvial deposits due to economic development of Central Yakutia.** [Kriogennyye gidrogeokhimicheskie izmeneniya alluvial'nykh otlozheniy pri khoziaistvennom osvoenii Tsentral'noi Iakutii]. Anisimova, N.P., Okhrana okruzhaiushchey sredy pri osvoenii oblasti mnogoletnemerzlykh porod (Environmental protection in economic development of permafrost areas) edited by N.A. Grave, Moscow, Nauka, 1980, p.107-111, In Russian. 3 refs.

**Economic development, Human factors engineering, Permafrost weathering, Permafrost hydrology, Permafrost control, USSR—Yakutia.**

34-3297

**Restoration of natural landscapes disturbed by human activities.** [Rekul'tivatsiia narushennykh v rezul'tate deiatel'nosti cheloveka prirodnykh landshtafrov]. Liverovskii, I.U.A., et al., Okhrana okruzhaiushchey sredy pri osvoenii oblasti mnogoletnemerzlykh porod (Environmental protection in economic development of permafrost areas) edited by N.A. Grave, Moscow, Nauka, 1980, p.111-115, In Russian.

**Environmental protection, Soil erosion, Human factors engineering, Vegetation, Polar regions.**

34-3298

**Changes in the properties of soils in the eastern foothills of the Polar Urals Mountains and the adjacent plain caused by construction of linear structures.** [Izmeneniye svoystv pochvy vostochnykh predgoriy Polarnogo Urala i priliegaiushchey ravniny v svyazi so stroitel'stvom lineinogo sooruzheniya]. Liverovskaya, I.T., Okhrana okruzhaiushchey sredy pri osvoenii oblasti mnogoletnemerzlykh porod (Environmental protection in economic development of permafrost areas) edited by N.A. Grave, Moscow, Nauka, 1980, p.116-121, In Russian. 9 refs.

**Permafrost beneath structures, Soil erosion, Revegetation, Environmental protection, Roads, Pipelines.**

34-3299

**Disturbance of natural environments by construction of linear structures and the first stages of restoration of soil and vegetational covers.** [Narusheniia prirodnoi sredy i pervye stadii vosstanovleniya pochvenno-rastitel'nogo pokrova pri nekotorykh vidakh lineinogo stroitel'stva]. Smirnov, V.V., et al., Okhrana okruzhaiushchey sredy pri osvoenii oblasti mnogoletnemerzlykh porod (Environmental protection in economic development of permafrost areas) edited by N.A. Grave, Moscow, Nauka, 1980, p.121-127, In Russian. 4 refs.

**Environmental protection, Revegetation, Tundra, Forest tundra, Soil erosion, Polar regions.**

34-3300

**Root systems of sodding plants and their role in the restoration of vegetational cover disturbed by economic activities.** [Korneye sistemy rasteniy-zaderzhatel'nykh i ikh znachenie dlia vosstanovleniya rastitel'nogo pokrova narushennogo pri khoziaistvennom osvoenii territorii]. Vital', A.D., Okhrana okruzhaiushchey sredy pri osvoenii oblasti mnogoletnemerzlykh porod (Environmental protection in economic development of permafrost areas) edited by N.A. Grave, Moscow, Nauka, 1980, p.128-133, In Russian. 6 refs.

**Tundra, Forest tundra, Human factors engineering, Soil erosion, Revegetation, Arctic landscapes.**

34-3301

**Telemetering of ice cover parameters.** [Distantionnyye izmereniia parametrov ledianogo pokrova]. Leningrad. Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut. Trudy, 1977, Vol.343, 154p., In Russian. For individual papers see 34-3302 through 34-3318. Refs. passim.

**Ice surveys, Ice reporting, Radar photography, Telemetering equipment, Side looking radar, Infrared equipment, Spaceborne photography, Arctic Ocean.**

34-3302

**Automatically controlled information system for the Arctic (ALISA).** [Avtomatizirovannaya ledovoinformatsionnaya sistema dlia Arktiki (ALISA)]. Bushuev, A.V., et al., Leningrad. Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut. Trudy, 1977, Vol.343, p.6-16, In Russian. 4 refs.

**Ice navigation, Ice reporting, Ice surveys, Telemetering equipment, Design, Arctic Ocean.**

34-3303

**External orientation of satellite scanning radiometer photographs.** [Opredelenie elementov vneshnego orientirovaniia snimkov skaniruiushchikh radiometrov ISZ].

Bushuev, A.V., Leningrad. Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut. Trudy, 1977, Vol.343, p.17-25, In Russian. 4 refs.

**Radar photography, Spaceborne photography, Photointerpretation, Orientation, Ice surveys.**

34-3304

**Determining ice cover characteristics from spaceborne photographs of scanning infrared radiometers.** [Opredelenie kharakteristik ledianogo pokrova po sputnikovym snimkam skaniruiushchikh infrakrasnykh radiometrov]. Masanov, A.D., Leningrad. Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut. Trudy, 1977, Vol.343, p.26-33, In Russian. 7 refs.

**Spaceborne photography, Radar photography, Photointerpretation, Infrared equipment, Radiometry.**

34-3305

**Compiling ice maps from photographs made by meteorological satellites.** [Isopol'zovanie snimkov poluchennykh s meteorologicheskikh sputnikov v kachestve osnovy dlia sostavleniya ledovykh kart]. Provorkin, A.V., Leningrad. Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut. Trudy, 1977, Vol.343, p.34-39, In Russian.

**Spaceborne photography, Ice surveys, Charts, Ice navigation.**

34-3306

**Using microwave satellite measurements for mapping sea ice.** [Isopol'zovanie mikrovolnovykh sputnikovykh izmereniy dlia kartirovaniia morskikh ledov]. Loshchilov, V.S., Leningrad. Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut. Trudy, 1977, Vol.343, p.40-45, In Russian. 7 refs.

**Sea ice, Mapping, Ice navigation, Spaceborne photography, Radar photography, Ice surveys.**

34-3307

**Analytic coordination of areal and route radar surveys.** [Analiticheskoe koordinirovaniye ploshchadnykh i marshrutnykh radiolokatsionnykh s'emok]. Bushuev, A.V., Leningrad. Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut. Trudy, 1977, Vol.343, p.46-57, In Russian. 4 refs.

**Drift, Radar photography, Side looking radar, Ice surveys, Sea ice.**

34-3308

**Accuracy of geographic correlation of Toros side looking radar photographs.** [Tochnost' geograficheskoi privyazki snimkov radiolokatsionnoi stantsii bokovogo obzora "Toros"]. Borisov, R.A., et al., Leningrad. Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut. Trudy, 1977, Vol.343, p.58-64, In Russian. 3 refs.

**Ice surveys, Aerial surveys, Sea ice.**

34-3309

**Operational analysis of the drift and deformation of ice cover from repeated areal radar survey photographs.** [Operativnyi analiz drefa i deformatsii ledianogo pokrova po materialam povtornykh radiolokatsionnykh ploshchadnykh s'emok]. Borisov, R.A., et al., Leningrad. Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut. Trudy, 1977, Vol.343, p.65-74, In Russian. 5 refs.

**Sea ice, Drift, Ice deformation, Ice surveys, Radar photography.**

34-3310

**Data on medium-scale deformations of ice covers in Arctic seas.** [Nekotorye dannyye o srednemasshtabnoi deformatsii ledianogo pokrova arkticheskikh morey]. Gorbunov, I.U.A., et al., Leningrad. Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut. Trudy, 1977, Vol.343, p.75-91, In Russian. 7 refs.

**Sea ice, Ice deformation, Drift, Ice surveys.**

34-3311

**Studying morphometric characteristics of summer ice cover in Arctic seas.** [Ob issledovanii nekotorykh morfometricheskikh kharakteristik ledianogo pokrova v arkticheskikh moriakh v letniy period]. Losev, S.M., et al., Leningrad. Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut. Trudy, 1977, Vol.343, p.92-103, In Russian. 6 refs.

**Sea ice, Drift, Ice deformation, Ice surveys, Aerial surveys, Side looking radar.**

34-3312

**Video-pulse radiometer of sea ice thickness as a promising means of ice surveying.** [Radiolokatsionnyi videoimpul'snyi izmeritel' tolschiny morskogo l'da kak novoe perspektivnoye sredstvo ledovoi razvedki]. Finkel'shtein, M.I., et al., Leningrad. Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut. Trudy, 1977, Vol.343, p.104-113, In Russian. 7 refs.

**Sea ice, Ice surveys, Ice cover thickness, Ice surface, Surface roughness, Ice salinity, Radar echoes.**

34-3313

**Using radar equipment for measuring ice cover thickness in ice surveys.** [Nekotorye rezul'taty ispol'zovaniia radiolokatsionnogo videoimpul'snogo izmeritel'ia tolschiny morskogo l'da dlia ledovoi razvedki]. Bushuev, A.V., et al., Leningrad. Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut. Trudy, 1977, Vol.343, p.114-121, In Russian. 3 refs.

**Sea ice, Ice surveys, Ice cover thickness, Radar echoes.**

34-3314

**Airborne laboratory for studying White Sea ice.** [Issledovanie morskikh l'dov Belogo moria s pomoshch'yu letaiushchey laboratorii]. Kurskaia, A.A., Leningrad. Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut. Trudy, 1977, Vol.343, p.122-126, In Russian.

**Sea ice, Ice surveys, Airborne equipment.**



34-3315

**Studying grounded ice hummocks from aerial photographs.** (Izucheniye stamukov po aerofotosnimkam). Losev, S.M., et al. Leningrad. *Arkticheskiy i antarkticheskiy nauchno-issledovatel'skiy institut. Trudy*, 1977, Vol. 343, p. 127-132. In Russian. 5 refs. Gorbunov, I.U.A.

**Sea ice. Ice surveys. Photography. Airborne equipment.**

34-3316

**Shifting of ice edges and ice cover boundaries.** (O smeshchenii kromok i dani granits ledanogo massiva). Gorbunov, I.U.A., et al. Leningrad. *Arkticheskiy i antarkticheskiy nauchno-issledovatel'skiy institut. Trudy*, 1977, Vol. 343, p. 133-140. In Russian. 3 refs. Losev, S.M.

**Sea ice. Drift. Ice edge. Aerial surveys. Ice surveys. Ice forecasting.**

34-3317

**Testing a numerical scheme for calculating winter ice distribution in Arctic seas.** (Rezultaty ispytaniya chislennoi skhemy rascheta raspredeleniya l'da v arkticheskikh mornakh zimoy).

Appel, I.L., et al. Leningrad. *Arkticheskiy i antarkticheskiy nauchno-issledovatel'skiy institut. Trudy*, 1977, Vol. 343, p. 151-154. In Russian. 5 refs. Gudkovich, Z.M., Teitelbaum, K.A.

**Sea ice. Ice surveys. Drift. Ice cover thickness. Ice surface. Pressure ridges. Arctic Ocean.**

34-3318

**Using statistical characteristics of radar photographs of ice covers for their recognition.** (Ispol'zovanie statisticheskikh kharakteristik radiolokatsionnykh izobrazhenii l'dov dlia ikh raspoznavaniya).

Aleksandrov, V.I.U., et al. Leningrad. *Arkticheskiy i antarkticheskiy nauchno-issledovatel'skiy institut. Trudy*, 1977, Vol. 343, p. 151-154. In Russian. 4 refs. Bushuev, A.V.

**Ice surveys. Sea ice. Radar photography. Side looking radar. Photointerpretation. Computer applications.**

34-3319

**Backscatter and emission of snow: literature review and recommendations for future investigations.**

Ulab, F.T., et al. Remote Sensing Laboratory, RSL Technical Report 369-1, Lawrence, University of Kansas Center for Research, Inc., June 1978, 138p., 3 refs. Fung, A.K., Stiles, W.H.

**Backscattering. Snow electrical properties. Snow cover effect. Microwaves. Dielectric properties.**

34-3320

**Variability of the tide at some sites in the Canadian Arctic.**

Godin, G., et al. *Arctic*, Mar. 1980, 33(1), p. 30-37, 7 refs. In English with French summary. Barber, F.G.

**Tides. Ice cover effect. Sea ice.**

34-3321

**Classification of the vegetation of Boothia Peninsula and the northern District of Keewatin, N.W.T.**

Thompson, D.C. *Arctic*, Mar. 1980, 33(1), p. 73-99, 30 refs. In English with French summary.

**Vegetation. Polar regions. Classifications. Canada—Northwest Territories—Keewatin District, Canada—Northwest Territories—Boothia Peninsula.**

34-3322

**Illustration of the roles of snow in the evolution of the winter cover of a lake.**

Adams, W.P., et al. *Arctic*, Mar. 1980, 33(1), p. 100-116, 12 refs. In English with French summary. Roulet, N.T.

**Ecosystems. Snow cover effect. Ice cover effect. Lake ice.**

34-3323

**Floating ice platforms for oil exploration in the Arctic Islands.**

Ekelund, M.J., et al. *Arctic*, Mar. 1980, 33(1), p. 168-183, 12 refs. In English with French summary. Masterson, D.M.

**Floating ice. Ice islands. Offshore drilling. Oil recovery. Ice creep. Ice deformation. Artificial islands. Loads (forces). Static loads.**

34-3324

**Ice spirals off Barrow as seen by satellite.**

Solomon, H., et al. *Arctic*, Mar. 1980, 33(1), p. 184-188, 7 refs. In English with French summary. Ahlén, K.

**Sea ice distribution. Topographic features. Pack ice. Ice edge. Ocean currents. Remote sensing. United States—Alaska—Barrow.**

34-3325

**Wastewater treatment in cold regions by overland flow.**

Martel, C.J., et al. *U.S. Army Cold Regions Research and Engineering Laboratory*, Feb. 1980, CR 80-7, 14p., ADA-084 489, 16 refs.

Jenkins, T.F., Palazzo, A.J.

**Waste treatment. Water treatment. Irrigation. Cold weather performance. Engineering. Soil chemistry. Agriculture.**

Primary effluent, secondary effluent (package extended aeration plant effluent with BOD's often greater than 30 mg/liter) and tapwater were applied to separate sections of a pilot-scale overland flow site in a cold regions environment. The average application rate for each section was 5.0 cm (2.0 in.) per week. Performance was evaluated for one year, May 1977 to June 1978. Results of this study demonstrated that overland flow can renovate both primary and secondary effluent during spring, summer and fall seasons. However, during winter, runoff water quality from the primary section contained almost no pollutants during its entire operation. Ammonia was the easiest form of nitrogen to remove and nitrate was the most difficult. Rainstorms did not cause a "flushing" effect. However, ammonia and nitrate concentrations in the runoff increased during snowmelt. The forage yield from the primary and secondary sections was almost twice that of a typical New Hampshire hayfield. Wastewater application during winter caused only minor cases of plant injury. Based on these results, a minimum of 30 days of storage is recommended if overland flow is used as a polishing process. If overland flow is used to treat primary effluent, the number of storage days predicted by EPA-1 computer program appears to be adequate.

34-3326

**High-explosive cratering in frozen and unfrozen soils in Alaska.**

Smith, N., *U.S. Army Cold Regions Research and Engineering Laboratory*, Feb. 1980, CR 80-9, 21p., ADA-084 702, 8 refs.

**Frozen ground mechanics. Explosion effects. Seasonal freeze thaw. Taliks. Excavation. Tests.**

Explosive cratering tests were conducted in seasonally frozen and thawed gravel at Ft. Richardson near Anchorage, Alaska, and in seasonally frozen and thawed silt overlying permafrost and in silt permafrost at Ft. Wainwright near Fairbanks, Alaska. Explosive charge weights ranged from 26 to 3120 lb. and charge burial depths ranged from about 3 to 40 ft. The cube root of the charge weight scaling was used to determine maximum scaled crater dimensions and optimum scaled depth of burial of the charge. Test results for frozen and thawed gravel were essentially the same because of the low moisture content and the relatively shallow depth of freezing (5 to 6 ft). The optimum depth of burial of the charge for maximizing the apparent radius and depth and the true radius was about 1.8 times the cube root of the charge weight for both the frozen and thawed conditions. In seasonally frozen silt overlying a talik and silt permafrost, the maximum scaled crater dimensions and optimum scaled burial depths of the charge were smaller than for the thawed condition except for the true crater dimensions. The channeling of energy in the talik produces maximum crater dimensions and an optimum burial depth for the true crater that is larger than for the thawed condition. The results for the homogeneous silt permafrost were very similar to the frozen gravel results, with much smaller maximum crater dimensions and smaller optimum charge burial depths than for the thawed silt overlying permafrost.

34-3327

**Roof leaks in cold regions: school at Chevak, Alaska.**

Tobiasson, W., et al. *U.S. Army Cold Regions Research and Engineering Laboratory*, Apr. 1980, CR 80-11, 12p., ADA-084 914.

Johnson, P.R.

**Roofs. Leakage. Buildings. Meltwater. Snow accumulation. Condensation. Subpolar regions.**

Four types of roof leaks occurred at a new school building in Chevak, Alaska: 1) blowing snow entered the roof through eave vents and then melted, 2) slush and ice in roof valleys caused meltwater to overflow the valley flashing and run into the building, 3) water entered at a roof-wall intersection and 4) in many areas water entered through gaps in the sloping plywood deck. Sealing the eave vents made it impossible for blowing snow to enter the roof at the eaves. Electric heat tapes eliminated the valley icing problem. Missing flashing was responsible for the roof-wall intersection leaks. The absence of a vapor barrier in the roof was the cause of many leaks. It was recommended that the roof be repaired from the exterior by removing component elements down to the plywood deck, installing an adhered continuous vapor barrier and reassembling the roof. An alternative roof cladding of composition shingles was discussed as was conversion to a "cold roof." The roof was repaired and modified following recommendations, and problems appear to have been solved.

34-3328

**Coastal environment, bathymetry, and physical oceanography along the Beaufort, Chukchi and Bering Seas.**

Gatto, L.W., *U.S. Army Cold Regions Research and Engineering Laboratory*, Jan. 1980, SR 80-5, 357p., ADA-084 281, 56 refs.

**Coastal topographic features. Bathymetry. Marine geology. Shoreline modification. Oceanography. Environments.**

The report contains references, figures, and tables that are concerned with the coastal environment, bathymetry, and physical oceanography along the Beaufort, Chukchi, and Bering Seas. The text, intentionally minimized, describes the salient points with a minimum of detail. The extensive references and figures give direction to a reader seeking additional information.

34-3329

**Documentation for a two-level dynamic thermodynamic sea ice model.**

Hibler, W.D., III, *U.S. Army Cold Regions Research and Engineering Laboratory*, Feb. 1980, SR 80-8, 35p., ADA-084 273, 9 refs.

**Sea ice. Ice thermal properties. Thermodynamic properties. Heat transfer. Ice mechanics. Ice cover thickness. Mathematical models. Computer programs. Rheology.**

A discussion of the numerics and computer code for a two-level dynamic thermodynamic sea ice model is presented. For interested users a listing of the computer code and results from a 21-day test run are included as appendices. To a large degree this report is meant to serve as an extended appendix to an article by the author in the *Journal of Physical Oceanography* (see 34-741) describing his model and a variety of simulation results. The model consists of a two-level ice thickness distribution coupled to the ice dynamics by a plastic rheology. In addition to the ice interaction the momentum balance includes nonlinear wind and water drag terms, Coriolis force, and inertial and momentum advection terms. The numerical scheme is formulated in an energy-conserving manner in a fixed Eulerian grid which allows simulation over unlimited time intervals. The momentum balance (including inertial terms) is numerically treated in a semi-implicit manner so that time steps of up to one day in length may be used if desired. The boundaries, grid size and time step magnitude are easily modified so that the model should have application to a variety of climate and forecasting problems.

34-3330

**Ice thickness-tensile stress relationship for load-bearing ice.**

Johnson, P.R., *U.S. Army Cold Regions Research and Engineering Laboratory*, Feb. 1980, SR 80-9, 11p., ADA-084 274, 3 refs.

**Ice cover strength. Ice loads. Ice crossings. Ice roads. Tensile properties. Stresses. Ice cover thickness.**

The "bearing capacity" of a floating ice sheet is of considerable interest. The pattern of ice thickness vs. tensile stress for a fixed load and fixed ice properties was examined and showed some constant relationships. It proved possible to completely describe the ice thickness-tensile stress pattern in terms of a single number. When the load was changed by increasing the payload but not altering the geometry of the load pattern, other relationships were found that described the tensile stress in the ice sheet for any combination of payload and ice thickness. This provides a simple method of finding tensile stress in the ice that can be used in the field. Further studies are planned.

34-3331

**Operation of the CRREL prototype air transportable shelter.**

Flanders, S.N., *U.S. Army Cold Regions Research and Engineering Laboratory*, Feb. 1980, SR 80-10, 73p., ADA-084 275.

**Portable shelters. Cold weather performance. Transportation. Airplanes. Logistics.**

This report describes the operation of the CRREL prototype air-transportable shelter which was designed specifically for use in cold regions. The operating instructions cover moving the shelter on its own wheels or skis, loading it onto a truck or military transport aircraft, slinging it from a helicopter or preparing it for shipment as an ISO container. The report details how to site the shelter and expand it to about double its transport size. The report also covers operation of the utility systems, including the on-board alternator set, the primary and auxiliary heating systems, the water system, and various safety systems.

34-3332

**Snow fortifications as protection against shaped charge antitank projectiles.**

Farrell, D.R., *U.S. Army Cold Regions Research and Engineering Laboratory*, Mar. 1980, SR 80-11, 19p., ADA-084 276.

**Snow strength. Fortifications. Cold weather construction. Cold weather operation. Snow (construction material). Explosion effects. Impact tests. Detonation waves. Embankments.**

This report chronicles an investigation of the effectiveness of snow fortifications. The test was planned to observe and measure how packed snow absorbs the energy of high explosive antitank (HEAT) ammunition. In the test plan both the possibility of non-detonation due to insufficient resistance in snow and the rate of deterioration of a snow embankment with repeated impacts were considered. The 90-mm M67 recoilless rifle was used because it has a relatively low velocity, and its charge was more likely to not detonate than that of a high velocity weapon. The findings indicate that snow can be used to good advantage for building expedient fortifications, particularly in situations where large volumes of snow have to be cleared from roads and airfields.

34-3333

**Drilling and coring of frozen ground in northern Alaska, Spring 1979.**

Lawson, D.E., et al. *U.S. Army Cold Regions Research and Engineering Laboratory*, Mar. 1980, SR 80-12, 14p., ADA-084 277, 6 refs.

Brockett, B.

**Drilling, Permafrost structure, Stratigraphy, Ground ice, Permafrost samplers, Core samplers, Equipment.** Frozen samples of perennally frozen ground were obtained from 13 holes drilled at six locations in the National Petroleum Reserve, Alaska, in the spring of 1979. Total depth of drilling was 510 m (1670 ft), of which 178 m (584 ft) was cored. The objectives of the program were to define the location and extent of segregated and massive ice at each location and to determine the origins and ages of the ground ice through studies of the hole stratigraphy and future laboratory analyses of core samples.

34-3334

**Extending the useful life of DYE-2 to 1986. Part 2: 1979 findings and final recommendations.**

Tobiasson, W., et al. *U.S. Army Cold Regions Research and Engineering Laboratory*, Apr. 1980, SR 80-13, 37p., ADA-084 278, 8 refs.

Tilton, P.

**Radar, Stations, Snow accumulation, Ice formation, Snow strength, Loads (forces), Steel structures, Stresses, Cost analysis.**

A major construction effort is needed at Dew Line Ice Cap Station DYE-2 to extend its useful life to 1986. That work should be done as soon as possible because the truss enclosure is deteriorating rapidly. Although a 210-ft sideways move as was accomplished at DYE-3 in 1977 is technically feasible, the alternative of backfilling the truss enclosure with ice is expected to cost about \$2.7 million less. Unless there is a strong possibility that DYE-2 will be needed for many years beyond 1986, the ice backfill alternative is recommended.

34-3335

**CRREL roof moisture survey, Pease AFB buildings 35, 63, 93, 112, 113, 120 and 220.**

Korhonen, C., et al. *U.S. Army Cold Regions Research and Engineering Laboratory*, Mar. 1980, SR 80-14, 31p., ADA-084 279, 3 refs.

Tobiasson, W.

**Roofs, Moisture transfer, Detection, Infrared spectroscopy, Thermal insulation, Measuring instruments.**

We surveyed the roofs of seven buildings at Pease AFB with a hand-held infrared scanner to detect wet insulation. We used white spray paint to outline the wet areas and took core samples of the built-up membrane and insulation to verify our findings. Flashing defects around penetrations and bordering walls appear to be the major cause of the wet insulation found on these roofs. Since most problem areas are localized, we directed our repair recommendations toward salvaging as much of each roof as is economically possible.

34-3336

**Antarctic navigation.**

Woodfield, T., *Journal of navigation*, May 1979, 32(2), p.234-242, Includes discussion.

**Ice navigation, Sea ice, Weather observations.**

The author shares some of the wisdom he has gained from nineteen years as master of survey ships supporting the BAS in its antarctic research programs. He describes the treacherous weather conditions of the Southern Ocean, the order in which sea ice forms are encountered during a southbound voyage, and suggests good seamanship practices for safely maneuvering a vessel in pack ice. He tells how to read weather indicators, recommends navigation methods, and cautions against the pitfalls inherent in the use of either magnets, or gyro compasses. With less than one percent of antarctic waters properly surveyed, he stresses that progress when off charted routes must be slow, careful, and vigilant.

34-3337

**Transportation under economic and geographic conditions of the Yakut ASSR.** (Transport v ekonomiko-geograficheskikh usloviyakh Iakutskoi ASSR).

Belinskii, B.V., ed. Yakutsk, Izdanie Iakutskogo Filiala SO AN SSSR, 1976, 104p., In Russian. For selected papers see 34-3338 through 34-3343.

DLC HE255 Z7Y347

**Transportation, Roads, Snow roads, Railroads, Rivers, Navigation, Airplanes, Economic analysis, USSR—Yakutia.**

34-3338

**Influence of procurement forms on magnitude of industrial supplies.** (Vlianie form snabzheniia na velichinu proizvodstvennykh zapasov).

Belinskii, B.V., et al. Transport v ekonomiko-geograficheskikh usloviyakh Iakutskoi ASSR (Transportation under economic and geographic conditions of the Yakut ASSR) edited by B.V. Belinskii, Yakutsk, Izdanie Iakutskogo Filiala SO AN SSSR, 1976, p.4-27, In Russian.

Lesnoi, V.G.

DLC HE255 Z7Y347

**Economic development, Materials, Equipment, Storage, Transportation, Snow roads, USSR—Yakutia.**

34-3339

**Freight traffic irregularities on rivers of the Yakut ASSR.** (Neravnomernost' gruzopotokov na rechnom transporte Iakutskoi ASSR).

Zavialov, S.I.A., Transport v ekonomiko-geograficheskikh usloviyakh Iakutskoi ASSR (Transportation under economic and geographic conditions of the Yakut ASSR) edited by B.V. Belinskii, Yakutsk, Izdanie Iakutskogo Filiala SO AN SSSR, 1976, p.28-40, In Russian.

DLC HE255 Z7Y347

**Rivers, Cargo, Transportation, Seasonal variations, USSR—Yakutia.**

34-3340

**Extending the navigation period on Yakutian rivers.** (K opredeleniiu prodleniia navigatsii na rekakh Iakutii).

Zernov, S.I.A., Transport v ekonomiko-geograficheskikh usloviyakh Iakutskoi ASSR (Transportation under economic and geographic conditions of the Yakut ASSR) edited by B.V. Belinskii, Yakutsk, Izdanie Iakutskogo Filiala SO AN SSSR, 1976, p.41-51, In Russian.

DLC HE255 Z7Y347

**Transportation, Rivers, Permafrost beneath rivers, Ice conditions, Navigation, USSR—Yakutia.**

34-3341

**Influence of railroads on motor vehicle transport in Yakutia.** (Vlianie razvitiia zheleznodorozhnogo transporta na rabotu avtomobil'nogo transporta v Iakutii).

Shtyrev, I.N., Transport v ekonomiko-geograficheskikh usloviyakh Iakutskoi ASSR (Transportation under economic and geographic conditions of the Yakut ASSR) edited by B.V. Belinskii, Yakutsk, Izdanie Iakutskogo Filiala SO AN SSSR, 1976, p.52-58, In Russian.

DLC HE255 Z7Y347

**Railroads, Roads, Permafrost beneath structures, Materials, Transportation, Economic analysis.**

34-3342

**Norms for spare parts expenditure in motor vehicle transport of the Yakut ASSR.** (O normakh rashkoda zapasnykh chastei na avtomobil'nom transporte Iakutskoi ASSR).

Karasev, G.A., et al. Transport v ekonomiko-geograficheskikh usloviyakh Iakutskoi ASSR (Transportation under economic and geographic conditions of the Yakut ASSR) edited by B.V. Belinskii, Yakutsk, Izdanie Iakutskogo Filiala SO AN SSSR, 1976, p.59-65, In Russian.

Grigor'ev, R.S., Shtyrev, I.N.

DLC HE255 Z7Y347

**Motor vehicles, Winter maintenance, Cold weather performance, Transportation.**

34-3343

**Economic effectiveness of turboprop planes used by Yakutian passenger airlines.** (Ob ekonomicheskoi effektivnosti ekspluatatsii turboprovotol'nykh tekhniki na passazhirskikh perevozkakh v Iakutskom aviapredpriatii).

Zharikov, O.N., et al. Transport v ekonomiko-geograficheskikh usloviyakh Iakutskoi ASSR (Transportation under economic and geographic conditions of the Yakut ASSR) edited by B.V. Belinskii, Yakutsk, Izdanie Iakutskogo Filiala SO AN SSSR, 1976, p.66-76, In Russian.

Platonova, L.V., Ponomareva, S.D.

DLC HE255 Z7Y347

**Airplanes, Transportation, Economic analysis.**

34-3344

**Snow cover and precipitation in the mountains of Central Asia.** (Snezhnyi pokrov i osadki v gorakh Srednei Azii).

Getker, M.I., ed. *Sredneaziatskii regional'nyi nauchno-issledovatel'skii gidrometeorologicheskii institut. Trudy*, 1978, Vol.44, 98p., In Russian. For selected papers see 34-3345 through 34-3350. Refs. passim.

Kononov, V.G., ed.

**River basins, Snow cover distribution, Snow depth, Glacier ablation, Snow accumulation, Mathematical models, Snow physics, Mountain glaciers, Snow line, Snow water equivalent, Water reserves.**

34-3345

**Information content of observations on precipitation and snow cover in the Uryadars'ya River Basin for long range forecasts of runoff.** (Ob informativnosti nabludenii nad osadkami i snezhnym pokrovom v basseine r. Uryadars'ya dlia dolgosrochnykh prognozov stokov).

Akhundzhanov, Sh.M., et al. *Sredneaziatskii regional'nyi nauchno-issledovatel'skii gidrometeorologicheskii institut. Trudy*, 1978, Vol.44, p.3-21, In Russian. 8 refs.

Getker, M.I.

**River basins, Snow cover distribution, Precipitation (meteorology), Snow water equivalent, Runoff, Long range forecasting.**

34-3346

**Seasonal snow line dynamics as indication of snow reserve gradient.** (Dinamika sezonnoi snegovoi linii kak pokazatel' gradienta snegozapasov).

Bassin, N.S., et al. *Sredneaziatskii regional'nyi nauchno-issledovatel'skii gidrometeorologicheskii institut. Trudy*, 1978, Vol.44, p.22-25, In Russian. 4 refs.

Shabunin, G.D.

**Mountain glaciers, Snow line, Snow water equivalent, Water reserves, Snow surveys.**

34-3347

**Results of a numerical experiment of calculating physical characteristics of dry snow.** (Rezultaty chislennogo eksperimenta po raschetu fizicheskikh kharakteristik sukhogo snega).

Trofimova, E.B., *Sredneaziatskii regional'nyi nauchno-issledovatel'skii gidrometeorologicheskii institut. Trudy*, 1978, Vol.44, p.26-33, In Russian. 4 refs.

**Snow physics, Snow cover structure, Metamorphism (snow), Mathematical models.**

34-3348

**More exact definition of mathematical model parameters of snow cover formation in mountains.** (Ob utocnenii parametrov modeli formirovaniia snezhnogo pokrova v gorakh).

Borodina, E.N., et al. *Sredneaziatskii regional'nyi nauchno-issledovatel'skii gidrometeorologicheskii institut. Trudy*, 1978, Vol.44, p.34-40, In Russian. 4 refs.

Trofimova, E.B.

**River basins, Snow cover distribution, Snow accumulation, Meteorological factors, Mathematical models.**

34-3349

**Empirical formulas for calculating melting on glaciers.** (Empiricheskie formuly dlia rascheta taniia na lednikakh).

Kononov, V.G., *Sredneaziatskii regional'nyi nauchno-issledovatel'skii gidrometeorologicheskii institut. Trudy*, 1978, Vol.44, p.41-53, In Russian. 4 refs.

**Glacier ablation, Glacier ice, Ice surface, Snow cover, Snow melting, Ice melting, Solar radiation, Heat transfer, Analysis (mathematics).**

34-3350

**Influence of slope orientation and dissected topography on the statistical structure of snow depth.** (Vlianie orientatsii sklonov i raschleneniia rel'efa na statisticheskuiu strukturu glubiny snega).

Chirkova, A.A., *Sredneaziatskii regional'nyi nauchno-issledovatel'skii gidrometeorologicheskii institut. Trudy*, 1978, Vol.44, p.64-77, In Russian. 4 refs.

**River basins, Snow cover distribution, Snow depth, Slope orientation, Topographic effects, Statistical analysis.**

34-3351

**Studying the mechanism of ice floe entrainment into submerged openings.** (Izuchenie mekhanizma vovlecheniia l'din v zaglublennnye otverstii).

Tsilikin, V.F., *Leningrad. Vsesoiuznyi nauchno-issledovatel'skii institut gidrotekhniki. Izvestiia*, 1978, Vol.126, p.98-102, In Russian. 7 refs.

**Ice breakup, Ice floes, Ice jams, Models.**

34-3352

**Ice on the move.**

Doake, C.S.M., *Alpine journal*, 1977, 82(326), p.65-71.

**Glaciers, Ice sheets, Antarctica, Greenland.**

In this general article the author touches briefly on the many forms of ice, the uses to which knowledge of ice and snow is put, the multi-disciplinary nature of ice, the major distribution and contributing areas of Greenland and Antarctica, the possibilities of glaciers as sources of fresh water, and some of the methods of studying glaciers.

34-3353

**Modern trends in design, construction and operation of land reclamation systems under Siberian conditions. Abstracts of papers presented at a seminar.** (Progressivnye napravleniia proektirovaniia, stroitel'stva i ekspluatatsii meliorativnykh sistem v usloviakh Sibiri. Tezisy dokladov respublikanskogo seminarai).

Sibirskii nauchno-issledovatel'skii institut gidrotekhniki i melioratsii, Krasnoyarsk, 1978, 292p. In Russian. For selected abstracts see 34-3354 through 34-3362.

Morozov, G.A., ed.  
DLC S605.2.R9S58

**Land reclamation, Snow cover effect, Hydraulic structures, Permafrost hydrology, Water supply, Permafrost beneath structures, Dams, Taiga, Soil formation, Channels (waterways), Cryogenic soils, Soil chemistry, Peat, Physical properties.**

34-3354

**Deformation of hydraulic structures of land reclamation systems in Central Yakutia.** (Deformatsii gidrotekhnicheskikh sooruzhenii na meliorativnykh sistemakh v Tsentral'noi IAKutii).

Seliverstov, A.P. Progressivnye napravleniia proektirovaniia, stroitel'stva i ekspluatatsii meliorativnykh sistem v usloviakh Sibiri. Tezisy dokladov respublikanskogo seminarai (Modern trends in design, construction and operation of land reclamation systems under Siberian conditions. Abstracts of papers presented at a seminar) edited by G.A. Morozov, Krasnoyarsk, 1978, p.7-10. In Russian.  
DLC S605.2.R9S58

**Hydraulic structures, Permafrost beneath structures, Land reclamation, Drainage, Dams, Frost shattering, Frost heave, Settlement (structural).**

34-3355

**Structure of land reclamation complexes of the Baykal-Amur railroad area and forecasts of their functioning.** (Struktura meliorativnykh kompleksov zony BAM i prognoz ikh funktsionirovaniia). Naprasnikov, A.T. Progressivnye napravleniia proektirovaniia, stroitel'stva i ekspluatatsii meliorativnykh sistem v usloviakh Sibiri. Tezisy dokladov respublikanskogo seminarai (Modern trends in design, construction and operation of land reclamation systems under Siberian conditions. Abstracts of papers presented at a seminar) edited by G.A. Morozov, Krasnoyarsk, 1978, p.39-40.  
DLC S605.2.R9S58

**Taiga, Permafrost distribution, Discontinuous permafrost, Cryogenic soils, Land reclamation, Baykal-Amur railroad.**

34-3356

**Specifics of soil formation and soils in West Siberia near the Yenisey River.** (Osobennosti pochvoobrazovaniia i pochvy Prieniseiskoi chasti Zapadnoi Sibiri).

Korsunov, V.M., et al. Progressivnye napravleniia proektirovaniia, stroitel'stva i ekspluatatsii meliorativnykh sistem v usloviakh Sibiri. Tezisy dokladov respublikanskogo seminarai (Modern trends in design, construction and operation of land reclamation systems under Siberian conditions. Abstracts of papers presented at a seminar) edited by G.A. Morozov, Krasnoyarsk, 1978, p.73-75. In Russian.

Boboleva, E.E., Karpenko, V.D., Korsunova, T.M.  
DLC S605.2.R9S58  
**Taiga, Permafrost distribution, Cryogenic soils, Soil formation, Soil chemistry.**

34-3357

**Determining stability of tailings dump embankments.** (Opredelenie ustoiichivosti damb khvostokhnalishch).

Zaslavskii, S.V. Progressivnye napravleniia proektirovaniia, stroitel'stva i ekspluatatsii meliorativnykh sistem v usloviakh Sibiri. Tezisy dokladov respublikanskogo seminarai (Modern trends in design, construction and operation of land reclamation systems under Siberian conditions. Abstracts of papers presented at a seminar) edited by G.A. Morozov, Krasnoyarsk, 1978, p.76-77. In Russian.  
DLC S605.2.R9S58

**Mining, Tailings, Embankments, Permafrost beneath structures, Ground ice, Deformation.**

34-3358

**Water conduit earth structures of land reclamation systems in Central Yakutia.** (Zemlianye vodoprovodiaschie sooruzheniia meliorativnykh sistem Tsentral'noi IAKutii).

Krasnov, I.U., et al. Progressivnye napravleniia proektirovaniia, stroitel'stva i ekspluatatsii meliorativnykh sistem v usloviakh Sibiri. Tezisy dokladov respublikanskogo seminarai (Modern trends in design, construction and operation of land reclamation systems under Siberian conditions. Abstracts of papers presented at a seminar) edited by G.A. Morozov, Krasnoyarsk, 1978, p.82-84. In Russian.  
DLC S605.2.R9S58

**Land reclamation, Peat, Drainage, Irrigation, Channels (waterways), Permafrost beneath structures, Ground ice.**

34-3359

**Sources of water supply and thermal energy resources of the Beloozerskii swamp.** (Istochniki vodnogo pitaniia i teploenergeticheskie resursy Beloozerskogo bolotnogo massiva).

Starkov, V.M. Progressivnye napravleniia proektirovaniia, stroitel'stva i ekspluatatsii meliorativnykh sistem v usloviakh Sibiri. Tezisy dokladov respublikanskogo seminarai (Modern trends in design, construction and operation of land reclamation systems under Siberian conditions. Abstracts of papers presented at a seminar) edited by G.A. Morozov, Krasnoyarsk, 1978, p.90-92. In Russian.  
DLC S605.2.R9S58

**Swamps, Permafrost distribution, Permafrost hydrology, Water supply, Subpermafrost ground water, Suprapermafrost ground water, Frozen rock temperature.**

34-3360

**Temperature regime of southern chernozems in the Irkutsk region, subject to long seasonal freezing, and their thermal melioration.** (Temperaturnyi rezhim dliatel'no sezonomerzlotnykh iuzhnykh chernozemov Irkutskoi oblasti i nekotorye voprosy ikh teplovot melioratsii).

Karnaukhov, N.I., et al. Progressivnye napravleniia proektirovaniia, stroitel'stva i ekspluatatsii meliorativnykh sistem v usloviakh Sibiri. Tezisy dokladov respublikanskogo seminarai (Modern trends in design, construction and operation of land reclamation systems under Siberian conditions. Abstracts of papers presented at a seminar) edited by G.A. Morozov, Krasnoyarsk, 1978, p.94-95. In Russian.

Morozova, K.V.  
DLC S605.2.R9S58  
**Cryogenic soils, Thermal regime, Frozen ground temperature, Frost protection, Snow cover effect, Snow retention, USSR—Irkutsk.**

34-3361

**Thermophysical properties of frozen low moor peats.** (Teplofizicheskie svoistva merzlykh nizinykh torfov).

Bushina, O.N., et al. Progressivnye napravleniia proektirovaniia, stroitel'stva i ekspluatatsii meliorativnykh sistem v usloviakh Sibiri. Tezisy dokladov respublikanskogo seminarai (Modern trends in design, construction and operation of land reclamation systems under Siberian conditions. Abstracts of papers presented at a seminar) edited by G.A. Morozov, Krasnoyarsk, 1978, p.132-134. In Russian.

Glushkova, N.I.  
DLC S605.2.R9S58

**Swamps, Peat, Physical properties, Thermal properties.**

34-3362

**Influence of freezing on nutrient content of hydromorphic soils.** (Vliianie kriogeneza na sodержanie elementov pitaniia v gidromorfnykh pochvakh).

Rudol, N.G., et al. Progressivnye napravleniia proektirovaniia, stroitel'stva i ekspluatatsii meliorativnykh sistem v usloviakh Sibiri. Tezisy dokladov respublikanskogo seminarai (Modern trends in design, construction and operation of land reclamation systems under Siberian conditions. Abstracts of papers presented at a seminar) edited by G.A. Morozov, Krasnoyarsk, 1978, p.148-150. In Russian.

Geras'kina, A.P.  
DLC S605.2.R9S58  
**Cryogenic soils, Nutrient cycle, Soil chemistry, Frost action.**

34-3363

**Large scale mapping of southern taiga vegetation in the Central Ural Mountains.** (Opyt krupnomasshtabnogo kartirovaniia rastitel'nosti iuzhnoi taige Srednego Uralai).

Gorchakovskii, P.L., et al. *Vsesoiuznoe botanicheskoe obshchestvo. Sverdlovskoe otdelenie. Zapiski*, 1977, Vol.7, Geobotanika, ekologiya i morfologiya rastenii na Urale (Geobotany, ecology and morphology of Ural Mountain plants) edited by P.L. Gorchakovskii, p.3-15. In Russian. 9 refs.  
Nikonova, N.N., Famelis, T.V., Sharafutdinov, M.I.  
DLC QK1.V714

**Mapping, Vegetation, Taiga, Charts, Landscape types, USSR—Ural Mountains.**

34-3364

**Ecologic series technique for revealing regularities governing altitudinal distribution of vegetation.** (Primenenie metoda ekologicheskikh riadov dlia vyivleniia zakononomernostei vysotnogo raspredeleniia rastitel'nosti).

Famelis, T.V. *Vsesoiuznoe botanicheskoe obshchestvo. Sverdlovskoe otdelenie. Zapiski*, 1977, Vol.7, Geobotanika, ekologiya i morfologiya rastenii na Urale (Geobotany, ecology and morphology of Ural Mountain plants) edited by P.L. Gorchakovskii, p.22-27. In Russian. 20 refs.  
DLC QK1.V714

**Alpine landscapes, Taiga, Alpine tundra, Vegetation.**

34-3365

**Nitrogen transformations in a simulated overland flow wastewater treatment system.**

Chen, R.L., et al. *U.S. Army Cold Regions Research and Engineering Laboratory*, Apr. 1980, SR 80-16, 33p., ADA-084 280, 36 refs.  
Patrick, W.H., Jr.

**Waste treatment, Water treatment, Nutrient cycle, Soil chemistry.**

Treating wastewater in properly designed and operated overland flow systems results in significant amounts of N being removed through nitrification-denitrification reactions. Application of wastewater containing NH<sub>4</sub>-N in a simulated overland flow model led to the disappearance of ammonium and the formation of nitrate in oxidized surface soil. The N balance in the simulated overland flow system was estimated by using labeled 15 N. The amount of N removed in the system depends upon denitrification rates. The results of this study indicated that N adsorption on the soil complex and uptake of applied ammonium by vegetation accounted for the N removed in the overland flow systems. The adsorbed ammonium on the aerated surface soil mass was nitrified and converted to oxidized forms of N. The nitrate thus formed diffused downward to the reduced zone during subsequent wastewater applications. Some of this nitrate then denitrified and converted to gaseous form of N or was assimilated and reduced by plant life. Results of the overland flow studies indicated that approximately 55-68% of wastewater NH<sub>4</sub>-N added to the simulated overland flow system was unaccounted for in controlled laboratory environments. This NH<sub>4</sub>-N was presumably returned to the atmosphere.

34-3366

**Time-dependent feedback system involving sea-ice extent, ocean temperature, and CO<sub>2</sub>.**

Saltzman, B., et al. *Tellus*, Apr. 1980, 32(2), p.93-118. In English with Russian summary. 31 refs.  
Moritz, R.E.

**Sea ice, Ice cover effect, Heat transfer, Mathematical models, Climate, Carbon dioxide, Sea water, Water temperature.**

34-3367

**Effects of loading thermal and electrical resistance of cryogenic insulation materials.**

Mil'man, S.B., et al. *Journal of engineering physics*, Feb. 1980, 33(2), p.982-985. Translated from *Inzhenerno-fizicheskii zhurnal*. 9 refs.  
Kaganer, M.G.

**Construction materials, Thermal insulation, Heat transfer.**

34-3368

**Maximum permissible values of nonuniform settlement of agricultural buildings.**

Zhukov, N.V., et al. *Soil mechanics and foundation engineering*, Sep.-Oct. 1979, 16(5), p.243-248, 2 refs. Translated from *Osnovaniia, fundamenti i mekhanika gruntov*.

Borshchev, V.V., Balov, I.L.  
**Settlement (structural), Frost heave, Design, Buildings, Foundations.**

- 34-3369**  
Construction of a cutoff wall by the diaphragm wall method in the foundation pit of a bank pumping station.  
Domarev, A.N., et al. *Soil mechanics and foundation engineering*, Sep-Oct. 1979, 16(5), p.255-259. Translated from *Osnovaniia, fundamente i mekhanika gruntov*.  
Nepomniashech, V.A., Sorokovkin, M.S., Fedorov, B.S.  
**Pumps, Foundations, Earthwork, Cold weather construction, Stations.**
- 34-3370**  
Pressure meter for testing soft soils.  
Lushnikov, V.V., et al. *Soil mechanics and foundation engineering*, Sep-Oct. 1979, 16(5), p.262-265. 7 refs. Translated from *Osnovaniia, fundamente i mekhanika gruntov*.  
Bystrykh, V.F.  
**Clay soils, Bearing tests, Drilling, Test equipment, Borehole instruments, Paludification.**
- 34-3371**  
Preconstruction consolidation of bases with vertical drains.  
Bel'skii, A.I., et al. *Soil mechanics and foundation engineering*, Sep-Oct. 1979, 16(5), p.266-272. 9 refs. Translated from *Osnovaniia, fundamente i mekhanika gruntov*.  
Svetinskii, E.V., Stroganov, A.S.  
**Clay soils, Peat, Mud, Soil compaction, Drainage, Foundations.**
- 34-3372**  
Determination of the parameters of the method of thermal stabilization of soils and its economic effectiveness.  
Iur'danov, A.P., *Soil mechanics and foundation engineering*, Sep-Oct. 1979, 16(5), p.272-278. 9 refs. Translated from *Osnovaniia, fundamente i mekhanika gruntov*.  
**Clay soils, Loess, Soil stabilization, Heating, Foundations.**
- 34-3373**  
Use of high-pressure water jets in construction.  
Petrosian, L.R., *Soil mechanics and foundation engineering*, Sep-Oct. 1979, 16(5), p.279-283. 5 refs. Translated from *Osnovaniia, fundamente i mekhanika gruntov*.  
**Excavation, Hydraulic jets.**
- 34-3374**  
Experience with the drying of loess soils using radial horizontal holes.  
Anpilov, V.E., et al. *Hydrotechnical construction*, July 1979, No.7, p.674-677. 2 refs. Translated from *Gidrotekhnicheskoe stroitel'stvo*.  
Ponomarenko, I.U.V.  
**Clay soils, Loess, Paludification, Drainage.**
- 34-3375**  
All-Union scientific-technical conference on hydrotechnical construction in regions of permafrost and rigorous climate (CHC-78).  
Kudoiarov, I.I., et al. *Hydrotechnical construction*, July 1979, No.7, p.724-726. Translated from *Gidrotekhnicheskoe stroitel'stvo*.  
Tetel'min, V.V.  
**Meetings, Hydraulic structures, Permafrost beneath structures, Earth dams, Thermal regime, Design.**
- 34-3376**  
Passage of ice during construction of the Sayano-Shushenskoe hydroelectric station.  
Koren'kov, V.A., *Hydrotechnical construction*, Aug. 1979, No.8, p.777-781. 6 refs. Translated from *Gidrotekhnicheskoe stroitel'stvo*.  
**Hydraulic structures, Electric power, Dams, Ice passing.**
- 34-3377**  
Investigation of construction-joint grouting techniques under field conditions.  
Zhivoderov, V.N., et al. *Hydrotechnical construction*, Sep. 1979, No.9, p.872-879. 5 refs. Translated from *Gidrotekhnicheskoe stroitel'stvo*.  
Sukhanov, G.K.  
**Concrete structures, Dams, Joints (junctions), Grouting.**
- 34-3378**  
Control of seepage through concrete by injection of polymer solutions.  
Ibragimov, M.N., *Hydrotechnical construction*, Sep. 1979, No.9, p.880-882. Translated from *Gidrotekhnicheskoe stroitel'stvo*. 3 refs.  
**Concretes, Fracturing, Porosity, Concrete structures, Joints (junctions), Seepage, Waterproofing, Grouting, Cements.**
- 34-3379**  
Problems of mountain glaciology. (Voprosy gornoi gliatsiologii).  
Nauchnaia konferentsiia Itogi i perspektivy gliatsiologii i klimatologicheskogo izucheniia Altae-Saianskoi gornoj oblasti, Tomsk, Feb. 19-22, 1975, Tomsk, Universitet, 1977, 212p. In Russian. For selected papers see 34-3380 through 34-3389. Refs. passim.  
Reviakin, V.S., ed.  
DLC GB2556.A57N37 (1975)  
**Glaciology, Climatology, Theories, Research projects, Mountain glaciers, Glacier mass balance, Snow accumulation, Snow line, Glacier ablation, Snow cover stability, Avalanches.**
- 34-3380**  
Glacio-climatology as a connecting scientific discipline, its problems and goals. (Gliatsioklimatologiya kak kontaktnaia nauchnaia distsiplina, ee tseli i zadachi).  
Tronov, M.V., *Voprosy gornoi gliatsiologii* (Problems of mountain glaciology) edited by V.S. Reviakin, Tomsk, Universitet, 1977, p.3-11. In Russian. 14 refs.  
DLC GB2556.A57N37 (1975)  
**Glaciology, Climatology, Theories, Research projects, Mountain glaciers, Ice formation, Firn, Glacier alimentation, Snow line, Glacier oscillation.**
- 34-3381**  
Intracontinental version of earth's cryosphere. (Vnutrikontinentalnyi variant gliatsiosfery zemli).  
Reviakin, V.S., *Voprosy gornoi gliatsiologii* (Problems of mountain glaciology) edited by V.S. Reviakin, Tomsk, Universitet, 1977, p.12-35. In Russian. 57 refs.  
DLC GB2556.A57N37 (1975)  
**Glacier ice, Mountain glaciers, Glacier formation, Glacier alimentation, Avalanches, Naleds, USSR—Altai Mountains, USSR—Sayan Mountains.**
- 34-3382**  
Radiation regime of the Altai-Sayan mountain system. (Osnovnye cherty radiatsionnogo rezhima Altae-Saianskoi oblasti).  
Goleshchikhin, V.P., *Voprosy gornoi gliatsiologii* (Problems of mountain glaciology) edited by V.S. Reviakin, Tomsk, Universitet, 1977, p.72-79. In Russian. 9 refs.  
DLC GB2556.A57N37 (1975)  
**Glacier ice, Alpine landscapes, Solar radiation, Glacier ablation, Radiation balance.**
- 34-3383**  
Subsistence regime of quasi-glacier snow patches. (Rezhim sushchestvovaniia mnogoletnikh snezhnikov - pochty lednikov).  
Glazyrin, G.E., *Voprosy gornoi gliatsiologii* (Problems of mountain glaciology) edited by V.S. Reviakin, Tomsk, Universitet, 1977, p.80-91. In Russian. 20 refs.  
DLC GB2556.A57N37 (1975)  
**Snow accumulation, Metamorphism (snow), Firn stratification, Topographic factors, Meteorological factors, Analysis (mathematics).**
- 34-3384**  
Snow patch stability in the Aktru River glaciation basin. (Snezhniki i ikh ustoiichivost' v gornolednikovom bassaine r. Aktru).  
Dudukalova, N.I., *Voprosy gornoi gliatsiologii* (Problems of mountain glaciology) edited by V.S. Reviakin, Tomsk, Universitet, 1977, p.103-106. In Russian. 4 refs.  
DLC GB2556.A57N37 (1975)  
**Snow cover stability, Glacial rivers, Alimentation, River basins, Snow patches.**
- 34-3385**  
Mass balance of Altai glaciers. (Veshchestvennyi balans lednikov Altaia).  
Reviakin, V.S., et al. *Voprosy gornoi gliatsiologii* (Problems of mountain glaciology) edited by V.S. Reviakin, Tomsk, Universitet, 1977, p.116-130. In Russian. 9 refs.  
Galakhov, V.N.  
DLC GB2556.A57N37 (1975)  
**Mountain glaciers, Glacier mass balance, Snow accumulation, Snow cover distribution, Glacier ablation.**
- 34-3386**  
Evaluating avalanche recurrence in Zailiyskiy Alatau from dendrochronological data. (Nekotorye rezul'taty otsenki povtornosti lavin v Zailiiskom Alatau po materialam dendrokronologicheskogo analiza).  
Severskii, I.V., et al. *Voprosy gornoi gliatsiologii* (Problems of mountain glaciology) edited by V.S. Reviakin, Tomsk, Universitet, 1977, p.131-140. In Russian. 13 refs.  
Kontsova, L.N., Toporkov, A.D.  
DLC GB2556.A57N37 (1975)  
**Avalanches.**
- 34-3387**  
Statistical analysis of the influence of morphology and morphometry of avalanche foci on ejection distances. (Staticheskii analiz vlianiia morfolologii i morfometrii lavinnykh ochagov na dal'nost' vybrosa lavin statisticheskimi metodami).  
Blagoveshchenskii, V.P., *Voprosy gornoi gliatsiologii* (Problems of mountain glaciology) edited by V.S. Reviakin, Tomsk, Universitet, 1977, p.141-147. In Russian. 5 refs.  
DLC GB2556.A57N37 (1975)  
**Avalanche formation, Avalanche mechanics, Avalanche triggering.**
- 34-3388**  
Forecasting fresh snow avalanches using discriminant analysis. (Eksperiment prognoza lavin svezhevyvavshago snega s pomoshch'iu diskriminantnogo analiza).  
Drozdovskaia, N.F., et al. *Voprosy gornoi gliatsiologii* (Problems of mountain glaciology) edited by V.S. Reviakin, Tomsk, Universitet, 1977, p.148-156. In Russian. 13 refs.  
Imas, L.I.  
DLC GB2556.A57N37 (1975)  
**Snow physics, Avalanche forecasting, Avalanche formation, Meteorological factors, Avalanche triggering, Analysis (mathematics).**
- 34-3389**  
Evaluating avalanche danger in the Katunskiy Range, Altai. (Opyt otsenki stepeni lavinnoi opasnosti na primere Katunskogo khrebita (Altai)).  
Reviakin, V.S., et al. *Voprosy gornoi gliatsiologii* (Problems of mountain glaciology) edited by V.S. Reviakin, Tomsk, Universitet, 1977, p.157-162. In Russian. 10 refs.  
Petkevich, M.V.  
DLC GB2556.A57N37 (1975)  
**Economic development, Avalanche formation, Mapping, Avalanche forecasting, USSR—Altai Mountains.**
- 34-3390**  
Polar environmental monitoring: final report. System Planning Corporation, Arlington, Va., Feb. 1979, 94p. SPC 392.  
Nagler, R.G., Schultheis, A.C.  
**Spacecraft, Monitors, Sea ice, Remote sensing, Weather, Radiometry, Climate, Polar atmospheres, Environmental protection, Antarctica.**  
This report investigates the technical and economic feasibility of a satellite-based polar environmental monitoring system. User benefits to industry, government and the scientific community are discussed and interested and active user groups identified. The report is then organized into the following sections: user needs for polar environmental information; polar measurement status; sensor status; trajectory tradeoffs; data processing and delivery alternatives; platform (payload) alternatives; and sample implementation alternatives for polar research.
- 34-3391**  
Study of shorelines in the building and operation of Siberian reservoirs.  
Vendrov, S.L., et al. *U.S. Army Cold Regions Research and Engineering Laboratory*, Feb. 1980, TL 724, 10p., ADB-046 835L. For Russian original see 32-439. 22 refs.  
Shirokov, V.M.  
**Shoreline modification, Reservoirs, Shore erosion, Permafrost beneath lakes, Ground ice, Forecasting, Water storage.**  
Since the early 1950's, increased construction of large reservoirs has led to expanded studies of shoreline re-formation. Shorelines of reservoirs have been studied in two stages: 1) during the construction period and filling of the reservoir and 2) during its long-term use. Forecasting of shoreline changes not only for reservoir design but also for long-term use of the shores has attained importance. Problems needing study currently include improvement of long-term forecasts and checking of their accuracy, large scale study of shoreline re-formation throughout the country, studies of the shorelines of small and medium-sized Siberian reservoirs, changes in water level, linked reservoirs, genetic classification of reservoir shorelines, and study of the development of shorelines of reservoirs along the Baykal-Amur railroad.



34-3392

**Permafrost in the territory of the Boguchansk reservoir.**

Serov, A.G., et al. *U.S. Army Cold Regions Research and Engineering Laboratory*, Feb. 1980, TL 725, 9p., ADB-046 836L. For Russian original see 33-3415. 2 refs.

Leshchikov, F.N.

**Permafrost distribution, Active layer, Geocryology, Sporadic permafrost, Frozen fines, Swamps, Peat, Frost penetration, Snow cover effect, Charts, USSR—Angara River.**

The distribution of permafrost in the vicinity of the Boguchansk Reservoir is irregular. It covers 20-30% of the region generally on shaded north-facing slopes, in deep ravines and small valleys, and in populated areas. The top of the permafrost is mainly at 0.5 to 2.5 m depth, thickness is generally 5-10 m and can reach 20 m. The depth of seasonal freezing of soils varies greatly, depending mainly on the amount of snow cover and type of soil (range 0.6-3.5 m). Disruption of natural conditions (cutting of forests, fires, plowing, road-building) will cause rapid degradation of the permafrost. Construction of the reservoir will lead to dramatic change (permafrost degradation) in the shoreline zone.

34-3393

**Geoengineering and hydrogeologic studies of the zone of influence of the Angara reservoirs and means of effective incorporation of these results in the national economy.**

Odintsov, M.M., et al. *U.S. Army Cold Regions Research and Engineering Laboratory*, Feb. 1980, TL 726, 10p., ADB-046 837L. For Russian original see 33-3414. 11 refs.

Trzhitsinskii, I.U.B., Shen'kman, B.M.

**Reservoirs, Permafrost distribution, Electric power, Shore erosion, Slope processes, Landslides, Solifluction, Earthquakes, USSR—Angara River.**

A string of hydroelectric dams in Eastern Siberia have created a system of reservoirs some 800-900 km long. The reservoirs have created a host of hydrological and geological problems, including eroding banks, activated karsting, mudslides, landslides, increases in the height of the water table, and changes in the processes of ground water-surface water exchange. The Soviet Institute of the Earth's Crust has been studying these problems. They have published a number of reports, modeled various processes, and developed a program for future research.

34-3394

**Thermal behavior of concrete slab on frozen ground bed.**

Gavrish, I.U.E., et al. *U.S. Army Cold Regions Research and Engineering Laboratory*, Feb. 1980, TL 729, 9p., ADB-046 838L. For Russian original see 33-1817. 3 refs.

Khvorostovskaia, N.S., Serbin, V.G.

**Winter concreting, Frozen ground, Concrete freezing, Concrete strength, Thermal regime, Concrete placing.**

This work involved experimental and theoretical studies of the thermal behavior of a concrete slab design and frozen ground bed from the instant of placement of the concrete until its freezing. The experiment was conducted on an exposed experimental site with sandy soil, containing approximately 11% moisture by weight.

34-3395

**Components of biogeocenoses of the tundra-forest regions of the northern Okhotsk Sea region.**

Ignatenko, I.V., ed. *U.S. Army Cold Regions Research and Engineering Laboratory*, Mar. 1980, TL 730, 51p., ADB-046 839L. 66 refs. For Russian original see 34-1158. For individual articles see 34-3396 through 34-3399.

Khokhriakov, A.P., ed.

**Forest tundra, Ecology, Biogeography, Vegetation, Climate, Animals, Soils.**

A description is given of the basic components of biogeocenoses of the territory of the "Snow Valley" station, situated by the Okhotsk Sea land province: the geological structure, the topography, soil-forming rocks, the climate, the vegetation and soil beds, the flora of vascular plants, fungi and mosses, entomofauna and fauna of land invertebrates, the morphological-genetic characteristics, and the hydrothermal regulation of the more prevalent soils of the station. Diagrams of the vegetation and soil covers are given also. The structure of the soil cover is separated into various grades in the soil diagram. Much attention has been devoted to human activity in the soil and vegetation covers.

34-3396

**Physical-geographical conditions of the northern Okhotsk Sea region and the hydrothermal state of the soils ("Snow Valley Station").**

Ignatenko, I.V., et al. *U.S. Army Cold Regions Research and Engineering Laboratory*, Mar. 1980, TL 730, p.5-23, For Russian original see 34-1159. 32 refs.

Mel'nikova, T.V., Pugachev, A.A.

**Forest tundra, Soil temperature, Vegetation, Taiga, Soil water, Landscape types, Plant ecology.**

34-3397

**Vegetation of the "Snow Valley" station (Explanatory list with a diagram of vegetation).**

Shatkauskas, A.V., et al. *U.S. Army Cold Regions Research and Engineering Laboratory*, Mar. 1980, TL 730, p.24-35, For Russian original see 34-1160. 15 refs.

Zverdenko, V.B.

**Forest tundra, Taiga, Vegetation, Plant ecology, Ecosystems, Mapping, Charts.**

34-3398

**Soil cover of the "Snow Valley" station (Explanatory list with a diagram of soil cover).**

Bogdanov, I.E., et al. *U.S. Army Cold Regions Research and Engineering Laboratory*, Mar. 1980, TL 730, p.36-47, For Russian original see 34-1161. 23 refs.

Ignatenko, I.V., Kvantaliani, L.G.

**Cryogenic soils, Classifications, Landscape types, Soil patterns, Mapping.**

34-3399

**Flora of vascular plants of the "Snow Valley" station.**

Khokhriakov, A.P., et al. *U.S. Army Cold Regions Research and Engineering Laboratory*, Mar. 1980, TL 730, p.48-51, For Russian original see 34-1162.

Shatkauskas, A.V.

**Forest tundra, Vegetation, Landscape types, Ecosystems, Swamps.**

34-3400

**Dynamics of the Baykal shore processes on the Tynda-Nizhneangarsk section.**

Bodenko, V.M., et al. *U.S. Army Cold Regions Research and Engineering Laboratory*, Mar. 1980, TL 731, 6p., ADB-046 840L. For Russian original see 33-3931. 5 refs.

Leshchikov, F.N., Rogozin, A.A.

**Shoreline modification, Geocryology, Slope processes, Frost weathering, Permafrost beneath structures, Hydraulic structures, Earthquakes, USSR—Baykal Lake.**

A 20-km length of the northern shoreline of Lake Baikal was investigated in connection with construction of the Baykal-Amur railroad. Interaction of the water body with the shore and geological evolution of the shoreline were studied. Morphology of the shore and bottom is described. Natural reworking of the shoreline and the effects and consequences of human activities (construction) are discussed.

34-3401

**Studying the effect of water reservoirs on slope processes on their shores.**

Kachugin, E.G., *U.S. Army Cold Regions Research and Engineering Laboratory*, Mar. 1980, TL 732, 3p., ADB-047 447L. For Russian original see 25-1305.

**Slope processes, Slope stability, Shore erosion, Reservoirs.**

This is a general description of reservoir shore erosion processes and data needs to assess slope stability, soil mechanics and landslide dynamics. The characteristics and types of landslides typical of the reservoir shores along the Volga are described. The following factors contribute to the loss of shore stability along these shores: abrasion at the waterline; gully and rill erosion along the face of the slope; ground water saturation of slope material and groundwater piping; chemical weathering and erosion of slope material; rapid pool level fluctuations causing alternating wetting and drying of slope and increase of hydrostatic pressure in slope after rapid drop in water level; and man-induced effects. Quantitative information on shore erosion and landslide processes is needed to predict reservoir shoreline recession.

34-3402

**Recent geological processes and phenomena observed on the southern shore of Ob' Bay.**

Trepetsov, E.V., *U.S. Army Cold Regions Research and Engineering Laboratory*, Mar. 1980, TL 733, 4p., ADB-046 841L. For Russian original see 29-2169. 2 refs.

**Slope processes, Permafrost structure, Permafrost weathering, Thermokarst, Environmental impact, Geomorphology, Clays, Sands, USSR—Ob' Bay.**

Parts of the shorelines of Ob' Bay and Tasov' Bay were studied in connection with planned and current construction projects in the Tumen' district. Windward shores composed of frozen loams, sands and sandy loams are retreating at a rate of about 0.9 m/yr due to abrasion, snow erosion and solifluction. Destruction of the turf cover by man has led to development of scours, ravines and gorges; in sand and sandy loam permafrost the rate of development is 48 m/yr. During summer, small streams fed by meltwater from thawing saturated permafrost exist in ravines. Also observed were thermokarst pits and lakes and frost mounds up to 5 m high.

34-3403

**How to compute complex interconnected district heating systems.**

Wehr, R., et al. *U.S. Army Cold Regions Research and Engineering Laboratory*, Mar. 1980, TL 734, 13p., ADA-084 211, Translated from *Fernwärme international*, 1979, 8(5):247-252. 6 refs.

Tautz, A.

**Heating, Heat transmission, Computer programs, District heating.**

The cost-intensive extension of urban district heating systems demands a relatively accurate assessment of the distribution apparatus with respect to the heating market to be supplied. Here we consider the plans of currently available computer programs which can reproduce with practical approximation the operating conditions of complicated interconnected heating networks. Along with the validity of the program, the quality of its application is equally critical; this application requires a meticulous analysis of parameters such as line resistances, temperature conditions and load distribution.

34-3404

**Differences between explosions and earthquakes.**

Cheng, Z.C., et al. *U.S. Army Cold Regions Research and Engineering Laboratory*, Mar. 1980, TL 735, 18p., ADA-084 245, Translated from *Acta Geophysica Sinica*, July 1975, 18(3):208-216. 11 refs.

Zhu, C.C., Hu, Z.C.

**Earthquakes, Explosion effects, Seismic surveys, Statistical analysis, Analysis (mathematics).**

This paper investigates the differences between seismograms of industrial explosions and earthquakes of medium strength (2-5.4) and at medium distances (100-500 km) in order to offer methods of distinguishing explosions from the records.

34-3405

**Ground ice and ice-rich ground as structure foundations.**

Vialov, S.S., et al. *U.S. Army Cold Regions Research and Engineering Laboratory*, Apr. 1980, TL 737, 159p., ADB-047 446L. For Russian original see 32-1655. 58 refs.

Dokuchaev, V.V., Sheinkman, D.R.

**Ground ice, Permafrost bases, Permafrost beneath structures, Ice strength, Ice creep, Foundations, Ice physics, Deformation, Rheology, Experimentation.**

This book examines the characteristics of foundation design on ground ice and ice-rich permafrost soils which are common in the Far North. The characteristics of these foundations are determined primarily by the properties of the enclosed or ground ice; therefore the latter is emphasized in this book. Based on experimental research, the authors establish patterns of deformation of ice-rich ground and ground ice under load, cite recommendations for the determination of characteristics necessary for design, present methods of computing foundation settling caused by the viscous flow of ice and ice-rich ground, and indicate methods of their application to engineering using examples. Supplementary tables and graphs contained in the book contribute to its value.

34-3406

**Microwave radar and radiometric remote sensing measurements of lake ice.**

Swift, C.T., et al. *Geophysical research letters*, Apr. 1980, 7(4), p.243-246, 11 refs.

Jones, W.L., Jr., Harrington, R.F., Fedors, J.C., Couch, R.H.

**Lake ice, Remote sensing, Microwaves, Radiometry, Ice spectroscopy.**

34-3407

**Growth of ice discs from the vapor and the mechanism of habit change of ice crystals.**

Keller, V.W., et al. *Journal of crystal growth*, July 1980, 49(3), p.458-464, 17 refs.

McKnight, C.V., Hallett, J.

**Ice crystal growth, Ice crystal nuclei, Vapor diffusion, Cloud chambers, Supersaturation, Temperature gradients.**

34-3408

**High pressure apparatus for PVT measurements of liquids and plastic crystals at low temperature.**

Landau, R., et al. *Review of scientific instruments*, Apr. 1980, 51(4), p.533-535, 16 refs.

Würflinger, A.

**Crystals, Plastics, Low temperature tests, Liquids, Pressure, Volume, Temperature effects, Measuring instruments.**

34-3409

**Alaskan gas line planners—the elite of Arctic experts.**

Kelder, B., *Pipeline and gas journal*, Mar. 1980, 207(3), p.54, 58, 91.

**Gas pipelines, Research projects, Permafrost beneath structures, Climatic factors, Polar regions.**

34-3410

**Exploring the Arctic for oil.**

Sklarewitz, N., *Exxon USA*, 1980, 2nd quarter, p.2-5.

**Sea ice, Ice mechanics, Ice cover strength, Oil recovery, Ice crystal structure, Exploration.**

- 34-3411**  
Snow physics, avalanches, mudflows. [Fizika snega, laviny, seli]. Zalikhonov, M.Ch., ed. *Nal'chik. Vysokogornyy geofizicheskii institut. Trudy*, 1980, Vol.46, 160p. In Russian. For individual papers see 34-3412 through 34-3430. Refs. passim.  
Avalanches, Snow cover distribution, Metamorphism (snow), Snow recrystallization, Snow temperature, Air temperature, Avalanche forecasting, USSR—Caucasus.
- 34-3412**  
Snow cover development and its dependence on winter temperature and slope exposition in the El'brus Mountain area. [Osobennosti razvitiia snezhnoi tolshchi i zavisimosti ot temperaturnykh usloviy zimy i ekspozitsii sklonov v Priel'brus'e]. Kunaeva, G.M., et al. *Nal'chik. Vysokogornyy geofizicheskii institut. Trudy*, 1980, Vol.46, p.3-12. In Russian. 17 refs.  
Metamorphism (snow), Snow recrystallization, Snow temperature, Air temperature, Avalanche forecasting, Snow cover structure.
- 34-3413**  
Avalanche regime of the El'brus Mountain area. [Lavinyi rezhim Priel'brus'ia]. Urumbaev, N.A., *Nal'chik. Vysokogornyy geofizicheskii institut. Trudy*, 1980, Vol.46, p.13-20. In Russian. 9 refs.  
Snow cover distribution, Snow cover structure, Snow recrystallization, Avalanche formation, Avalanche forecasting, Slope orientation, USSR—El'brus Mountain.
- 34-3414**  
Friable zones in snow cover and their meaning in avalanche formation. [O gorizontakh razrykhleniya v snezhnoi tolshche i ikh znachenii v lavinoobrazovanii]. Bolov, V.R., et al. *Nal'chik. Vysokogornyy geofizicheskii institut. Trudy*, 1980, Vol.46, p.21-28. In Russian. 11 refs.  
Zalikhonov, M.Ch., Shabel'nikov, V.A.  
Snow cover structure, Metamorphism (snow), Avalanche formation.
- 34-3415**  
Mechanism of avalanche formation from snow slabs with friable zones. [O mekhanizme obrazovaniia lavin iz snezhnoi doski pri nalichii gorizonta razrykhleniia]. Bolov, V.R., *Nal'chik. Vysokogornyy geofizicheskii institut. Trudy*, 1980, Vol.46, p.29-42. In Russian. 20 refs.  
Avalanche formation, Snow cover structure, Snow cover stability.
- 34-3416**  
Methods and results of artificial avalanche triggering in the El'brus Mountain area. [O rezul'tatakh i metodike iskusstvennogo spuska lavin v Priel'brus'e]. Bolov, V.R., et al. *Nal'chik. Vysokogornyy geofizicheskii institut. Trudy*, 1980, Vol.46, p.43-46. In Russian. 11 refs.  
Sokolov, L.V., Shabel'nikov, V.A.  
Avalanche formation, Avalanche triggering, Detonation waves, Snow slides, Avalanche engineering.
- 34-3417**  
Determining optimal time for artificial triggering of fresh snow avalanches. [K voprosu opredeleniia naibolee blagopriatnogo vremeni dlia aktivnogo vozdeistviia na svezhevyvavshii sneg s tsel'iu obrusheniia laviny]. Khalkechev, V.A., *Nal'chik. Vysokogornyy geofizicheskii institut. Trudy*, 1980, Vol.46, p.47-52. In Russian. 1 ref.  
Slope processes, Snow cover stability, Avalanche formation, Avalanche triggering.
- 34-3418**  
Regularities governing snow cover stability on slopes. [O nekotorykh zakonomernostiakh ustoiichivosti snezhnogo pokrova na sklonakh]. Mironov, V.N., et al. *Nal'chik. Vysokogornyy geofizicheskii institut. Trudy*, 1980, Vol.46, p.53-56. In Russian. 1 ref.  
Khalkechev, V.A.  
Slope processes, Snow cover stability, Snow cover structure, Avalanche formation, Analysis (mathematics).
- 34-3419**  
Thickness of fluid film on ice crystal surfaces. [K voprosu o tolshchine zhidkoi plenki na poverkhnosti kristallov l'da]. Badakhov, Kh.I., *Nal'chik. Vysokogornyy geofizicheskii institut. Trudy*, 1980, Vol.46, p.57-66. In Russian. 24 refs.  
Ice crystal nuclei, Metamorphism (snow), Water films, Avalanche forecasting, Analysis (mathematics).
- 34-3420**  
Data units for telemetering physical and mechanical properties of snow cover on slopes. [Datchiki dlia distantsionnogo izmereniia fiziko-mekhanicheskikh parametrov snezhnogo pokrova na sklonakh]. Bagov, M.M., et al. *Nal'chik. Vysokogornyy geofizicheskii institut. Trudy*, 1980, Vol.46, p.67-74. In Russian. 8 refs.  
Zalikhonov, M.Ch., Davydkin, A.D.  
Slope orientation, Snow cover distribution, Snow cover stability, Snow mechanics, Telemetering equipment, Remote sensing, Measuring instruments.
- 34-3421**  
Snow and avalanche loads on remote-control snow surveying installations. [Uchet snegolavinykh nagruzok na distantsionnuu snegomernuu ustanovku]. Bagov, M.M., et al. *Nal'chik. Vysokogornyy geofizicheskii institut. Trudy*, 1980, Vol.46, p.75-81. In Russian. 6 refs.  
Zalikhonov, M.Ch., Davydkin, A.D.  
Snow surveys, Measuring instruments, Remote sensing, Snow loads, Avalanche mechanics.
- 34-3422**  
Using gamma logging for snow density measurement on mountain slopes. [O primeneni gamma-karotazha dlia izmereniia plotnosti snezhnoi tolshchi na gornom sklonakh]. Bagov, M.M., et al. *Nal'chik. Vysokogornyy geofizicheskii institut. Trudy*, 1980, Vol.46, p.82-86. In Russian. 6 refs.  
Zalikhonov, M.Ch., Iushev, K.K., Bersirov, M.T.  
Snow surveys, Gamma irradiation, Measuring instruments, Remote sensing, Mathematical models.
- 34-3423**  
Compiling avalanche cadasters for the Terek River Basin. [Opyt sostavleniia kadastra lavin bassaina r. Terek]. Kozhaev, D.A., *Nal'chik. Vysokogornyy geofizicheskii institut. Trudy*, 1980, Vol.46, p.87-93. In Russian. 4 refs.  
River basins, Slope processes, Avalanche formation, Snow surveys, Data processing, Statistical analysis, USSR—Terek River.
- 34-3424**  
Avalanche cadasters for Dagestan and Transcaucasia. [O soderzhanii kadastra lavin Zakavkaz'ia i Dagestana]. Abshelishvili, K.L., et al. *Nal'chik. Vysokogornyy geofizicheskii institut. Trudy*, 1980, Vol.46, p.94-97. In Russian. 1 ref.  
Kaldani, L.A., Salukvadze, M.E.  
Snow surveys, Avalanches, Data processing, Avalanche formation, Statistical analysis.
- 34-3425**  
Effective radiation and radiation balance in the Caucasus. [Effektivnoe izluchenie i radiatsionnyi balans na territorii Kavkaza]. Samukashvili, R.D., *Nal'chik. Vysokogornyy geofizicheskii institut. Trudy*, 1980, Vol.46, p.98-110. In Russian. 3 refs.  
Glacier surfaces, Snow cover, Solar radiation, Radiation balance, USSR—Caucasus.
- 34-3426**  
Snow cover effect on annual variations of reflected radiation and albedo in the Caucasus. [Vliianie snezhnogo pokrova na godovoi khod otrazhennoi radiatsii i albedo v usloviakh Kavkaza]. Samukashvili, R.D., *Nal'chik. Vysokogornyy geofizicheskii institut. Trudy*, 1980, Vol.46, p.111-122. In Russian. 1 ref.  
Snow optics, Ice optics, Albedo, Alpine landscapes, Glacier ice, USSR—Caucasus.
- 34-3427**  
Diffuse radiation in the Caucasus. [Rasseiannaia radiatsiia na Kavkaze]. Samukashvili, R.D., *Nal'chik. Vysokogornyy geofizicheskii institut. Trudy*, 1980, Vol.46, p.123-129. In Russian. 1 ref.  
Solar radiation, Scattering, Radiation balance, Actinometry, USSR—Caucasus.
- 34-3428**  
Discharge of the Kairatsa and Sakashilsu rivers during the warm season. [Stok rek Kayratsa i Sakashilsu za teplyi period goda]. Samukashvili, R.D., *Nal'chik. Vysokogornyy geofizicheskii institut. Trudy*, 1980, Vol.46, p.130-136. In Russian. 3 refs.  
Glacial hydrology, Glacial rivers, Drainage, Glacier ablation.
- 34-3429**  
Mudflows in the Baksan River Basin in the summer of 1977. [Selevyie potoki v bassaine r. Baksan letom 1977 g.]. Gerasimov, V.A., *Nal'chik. Vysokogornyy geofizicheskii institut. Trudy*, 1980, Vol.46, p.137-147. In Russian. 4 refs.  
Mudflows, Glacial deposits, Glacial hydrology, Countermeasures, USSR—Caucasus.
- 34-3430**  
Mudflow damage to the village of Nizhniy Chegem on July 7, 1977. [Selevoi potok v sel. Nizhniy Chegem 7 iul'ia 1977 g.]. Gerasimov, V.A., *Nal'chik. Vysokogornyy geofizicheskii institut. Trudy*, 1980, Vol.46, p.148-151. In Russian. 6 refs.  
Mudflows, Origin, Countermeasures, USSR—Caucasus.
- 34-3431**  
Antarctic forecasters handbook. U.S. Naval Support Force, Antarctica. Antarctic Support Activities. Detachment Charlie, Apr. 1970, c125 leaves, 63 refs.  
DAS M09.3 U585 an  
Manuals, Weather forecasting.  
The topography, climatology, and a description of the area are presented, including a discussion of the topography and climatology of McMurdo station, instrumentation and runway (skway) configuration of the station's air fields, the geomorphology and general climatology of Antarctica and the climatology of other stations of the antarctic, subantarctic and southern hemisphere.
- 34-3432**  
Acoustic backscattering from uniform Arctic sea ice. Garrison, G.R., et al. Ocean '74 IEEE International Conference on Engineering in the Ocean Environment, Halifax, Nova Scotia, Aug. 21-23, 1974. Record, Vol.2, New York, Institute of Electrical and Electronic Engineers, 1975, p.34-38, 4 refs.  
Early, E.W.  
Sea ice, Ice acoustics, Backscattering, Sound waves, Ice bottom surface.
- 34-3433**  
Vibration of measuring equipment in the study of the ocean microstructure under the drifting ice. Gusev, A.V., et al. Ocean '74 IEEE International Conference on Engineering in the Ocean Environment, Halifax, Nova Scotia, Aug. 21-23, 1974. Record, Vol.2, New York, Institute of Electrical and Electronic Engineers, 1975, p.237-238.  
Poliakov, A.P.  
Subglacial observations, Measuring instruments, Vibration, Microstructure, Drift, Oceanography, Ocean currents, Flow rate, Water temperature, Salinity, Underwater acoustics.
- 34-3434**  
Preliminary classification system for vegetation of Alaska. Viereck, L.A., et al. U.S. Pacific Northwest Forest and Range Experiment Station, Portland, Oregon. U.S. Forest Service general technical report, May 1980, PNW-106, 38p., Refs. p.31-38.  
Dyrness, C.T.  
Vegetation, Plants (botany), Classifications, Polar regions, United States—Alaska.
- 34-3435**  
Great Lakes navigation season, 1979. Wilson, E.E., *Mariners weather log*, May-June 1980, 24(3), p.183-195.  
Ice navigation, Lake ice, Ice conditions, Remote sensing, United States—Great Lakes.
- 34-3436**  
Concentration of impurities by progressive freezing. Halde, R., *Water research*, 1980, 14(6), p.575-580, 10 refs.  
Artificial freezing, Freezing rate, Impurities, Suspended sediments, Sludges, Ice water interface, Waste treatment, Ice crystal growth, Liquid solid interfaces, Shear stress, Chemical composition.

34-3437

**Proceedings.**

Symposium on Marine Transportation and High Arctic Development: Policy Framework and Priorities. Montebello, Quebec, March 21-23, 1979. Ottawa, Canadian Arctic Resources Committee, 1979, 271p. Refs. passim. For selected papers see 34-3438 through 34-3440.

**Marine transportation, Ice navigation, Petroleum transportation, Economic development, Environmental impact, Natural resources, Ocean environments.**

34-3438

**Breaking the ice with COTRA.**

Pallister, A.E., Symposium on Marine Transportation and High Arctic Development: Policy Framework and Priorities, Montebello, Quebec, March 21-23, 1979. Proceedings, Ottawa, Canadian Arctic Resources Committee, 1979, p.15-29. Refs. p.26-29. **Ice breaking, Sea ice, Ice navigation, Economic development, Climatic factors, Ocean environments.**

34-3439

**Environmental aspects of Arctic marine transportation and development.**

Roots, E.F., Symposium on Marine Transportation and High Arctic Development: Policy Framework and Priorities, Montebello, Quebec, March 21-23, 1979. Proceedings, Ottawa, Canadian Arctic Resources Committee, 1979, p.69-96. 2 refs.

**Marine transportation, Economic development, Ocean environments, Polar regions, Sea ice, Ice navigation.**

34-3440

**Petroleum development in northern Alaska.**

Bregba, F., Symposium on Marine Transportation and High Arctic Development: Policy Framework and Priorities, Montebello, Quebec, March 21-23, 1979. Proceedings, Ottawa, Canadian Arctic Resources Committee, 1979, p.223-253. 21 refs.

**Marine transportation, Petroleum transportation, Economic development, Northern Passage, Ocean environments, United States—Alaska.**

34-3441

**Northwest Alaskan gas line project—engineering, prebuilding, route studies. Pipeline.** June-July, 1980, 53(4), p.12-16.

**Gas pipelines, Cold weather construction, Engineering, Route surveys, United States—Alaska.**

34-3442

**Alaska gas pipeline will be great challenge for pipelineers. Pipeline.** June-July, 1980, 53(4), p.20-22.

**Gas pipelines, Cold weather construction, Pipe laying.**

34-3443

**Foothills pipelines—Canadian segment Alaska Highway Gas Line.**

Stewart, M.E., *Pipeline*, June-July, 1980, 53(4), p.24-28.

**Gas pipelines, Cold weather construction, Prefabrication.**

34-3444

**Northern border pipeline plans. Pipeline.** June-July, 1980, 53(4), p.32-35.

**Gas pipelines, Cold weather construction, Route surveys.**

34-3445

**Polar gas project.**

Kaustinen, O.M., *Pipeline*, June-July, 1980, 53(4), p.36-39, 54.

**Gas pipelines, Cold weather construction, Ocean bottom, Pipe laying, Channels (waterways), Hydraulic structures, Tunnels, Polar regions.**

34-3446

**Concrete and cryogenics; Part 1.**

Turner, F.H., *Concrete*, May 1980, 14(5), p.39-40. **Concrete freezing, Concrete strength, Cryogenics, Low temperature tests, Temperature effects.**

34-3447

**Laboratory studies of riming, and its relation to ice splinter production.**

Choulaton, T.W., et al., *Royal Meteorological Society, London, Quarterly journal*, Apr. 1980, 106(448), p.367-374, 14 refs.

Griggs, D.J., Humood, B.Y., Latham, J. **Ice crystal growth, Ice crystal nuclei, Supercooled clouds, Hailfrost, Heat loss, Freezing nuclei, Particle size distribution, Temperature effects, Experimentation.**

34-3448

**Undersea pipelines and cables in polar waters.**

Mellor, M., *U.S. Army Cold Regions Research and Engineering Laboratory*, Sep. 1978, CR 78-22, 34p., ADA-086 161, 19 refs.

**Pipelines, Transmission lines, Hydraulic structures, Damage, Engineering, Excavation, Sea ice, Subsea permafrost, Ice scoring, Polar regions.**

Special environmental factors that influence the design, laying and maintenance of undersea pipelines and cables in polar waters are described. Various approaches to the protection of submarine pipes and cables are considered, and prime emphasis is given to burial techniques for shallow water. A wide range of methods for trenching and burying are discussed, and technical data are given.

34-3449

**Five-year performance of CRRÉL land treatment test cells; water quality plant yields and nutrient uptake.**

Jenkins, T.F., et al., *U.S. Army Cold Regions Research and Engineering Laboratory*, Nov. 1978, SR 78-16, 24p., ADA-086 172, 6 refs.

Palazzo, A.J., Schumacher, P.W., Keller, D.B., Graham, J.M., Quarry, S.T., Hare, H.E., Bayer, J.J., Foley, E.S.

**Land reclamation, Waste treatment, Water treatment, Waste disposal.**

The performance of the six land treatment cells is summarized over a five-year period from June 1977 through May 1978. The data presented include quality and volume of wastewater applied and percolate resulting from application of primary and secondary wastewater by spray irrigation. Mass loadings and removals are presented as well as crop production and nutrient uptake. Nutrient balance sheets are shown which demonstrate the percentage of nitrogen and phosphorus that is attributed to crop uptake and leachate over this period.

34-3450

**Influence of nose shape and L/D ratio on projectile penetration in frozen soil.**

Richmond, P.W., *U.S. Army Cold Regions Research and Engineering Laboratory*, Apr. 1980, SR 80-17, 21p., ADA-085 398, 10 refs.

**Frozen ground, Projectile penetration, Solutions, Experimentation.**

This report presents the results of a laboratory test program designed to determine the applicability of two analytical solutions to projectile penetrations in frozen soils. The test program consisted of firing small caliber cylindrical projectiles into frozen soil targets. Four types of 7.9-mm-diam projectiles were tested: two with a hemispherical nose the other two flat-nosed, with both long (length/diameter = 4) and short (L/D = 2) versions of each nose shape. Penetration depth versus impact velocity data are presented. Comparisons of the data indicate that a flat-nosed projectile is a less efficient penetrator than one of equal weight with a hemispherical nose. A small increase in resistance to penetration is observed for an increased L/D ratio.

34-3451

**Deicing a satellite communication antenna.**

Hanamoto, B., et al., *U.S. Army Cold Regions Research and Engineering Laboratory*, Apr. 1980, SR 80-18, 14p., ADA-085 397.

Gagnon, J.J., Pratt, B.

**Ice prevention, Antennas, Spacecraft, Protective coatings, Heating, Thermal effects, Polymers.**

Ice buildup on communication antenna dishes begins to cause signal reception problems when the thickness exceeds 0.64 cm (0.25 in.). CRRÉL's copolymer coating, which reduces the adhesive force between ice and the coated surface, was tested on antenna dish panels to facilitate ice removal. A combination of the copolymer coating and heat proved to be an effective method of removing ice from the panel.

34-3452

**Report of pit-wall observations of snow cover in Sapporo, 1978-1979.**

Endo, Y., et al., *Low temperature science (Teion Kagaku)*, Series A Physical sciences. Data report, 1979, No.38, p.1-5, 4 refs., In Japanese.

Akitaya, E., Omac, H., Kaneda, Y., Hukami, K. **Snow cover, Snow surveys, Snow physics, Snow density, Snow temperature, Snow depth.**

34-3453

**Snow survey in east slope of Mt. Teine, Hokkaido.**

Suizu, S., et al., *Low temperature science (Teion Kagaku)*, Series A Physical sciences. Data report, 1979, No.38, p.7-15, In Japanese.

Yamada, T., Wakahama, G.

**Snow surveys, Snow depth, Snow temperature.**

34-3454

**Snow cover observations at Avalanche Research Station, Toikanbetsu, northern Hokkaido, 12 (1977-1978 and 1978-1979).**

Huzioka, T., et al., *Low temperature science (Teion Kagaku)*, Series A Physical sciences. Data report, 1979, No.38, p.17-32, 11 refs., In Japanese.

Shimizu, H., Akitaya, E., Narita, H., Okano, T. **Snow cover stability, Avalanches, Snow physics, Snow accumulation, Snow temperature, Snow density.**

34-3455

**Strain rate and stresses of snow on a mountain slope, Toikanbetsu, northern Hokkaido, Pt.2.**

Huzioka, T., et al., *Low temperature science (Teion Kagaku)*, Series A Physical sciences. Data report, 1979, No.38, p.33-37, 1 ref., In Japanese.

Shimizu, H., Akitaya, E., Narita, H., Okano, T. **Snow physics, Stresses, Strains, Snow mechanics, Slope orientation.**

34-3456

**Distribution of pack ice off Okhotsk Sea coast of Hokkaido observed with sea ice radar network, January-May, 1979.**

Tabata, T., et al., *Low temperature science (Teion Kagaku)*, Series A Physical sciences. Data report, 1979, No.38, p.37-70, 1 ref., In Japanese.

**Sea ice distribution, Pack ice, Radar echoes, Seasonal variations, Okhotsk Sea.**

34-3457

**Frost heave in Tomakomai (1978-1979).**

Kinoshita, S., et al., *Low temperature science (Teion Kagaku)*, Series A Physical sciences. Data report, 1979, No.38, p.71-81, 1 ref., In Japanese.

**Frost heave, Frozen ground mechanics, Soil water, Soil mechanics.**

34-3458

**Crystallization-film mechanism of water migration toward frost penetration front. (Kristallizatsionno-plochnyni mekhanizm migratsii vlazi k frontu promerzaniia pochvy).**

Kaliuzhnyi, I.L., et al., *Leningrad. Gosudarstvennyi gidrologicheskii institut. Trudy*, 1980, Vol.268, p.3-12, In Russian. 22 refs.

Pavlova, K.K.

**Soil freezing, Ground ice, Ice crystals, Water films, Molecular structure, Soil water migration, Phase transformations.**

34-3459

**Studying soil moisture migration toward freezing fronts. (Issledovanie protsessa migratsii vlazi k frontu promerzaniia pochvy).**

Kaliuzhnyi, I.L., et al., *Leningrad. Gosudarstvennyi gidrologicheskii institut. Trudy*, 1980, Vol.268, p.13-29, In Russian. 9 refs.

Pavlova, K.K.

**Soil freezing, Soil water migration, Frost penetration, Laboratory techniques, Equipment.**

34-3460

**Regularities of soil moisture migration during frost penetration. (Issledovanie zakonomernostei migratsii vlazi pri promerzaniia pochvy).**

Sokolova, N.V., *Leningrad. Gosudarstvennyi gidrologicheskii institut. Trudy*, 1980, Vol.268, p.30-38, In Russian. 11 refs.

**Soil freezing, Soil water migration, Frost penetration.**

34-3461

**Mobile net technique for numerical solution of the equations of heat and moisture transfer in soils. (Primenenie podviznykh setok dlia chislennogo resheniia uravnenii perenosu tepla i vlazi v pochvo-gruntakh).**

Khimin, N.M., *Leningrad. Gosudarstvennyi gidrologicheskii institut. Trudy*, 1980, Vol.268, p.72-81, In Russian. 4 refs.

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Ice breaking, Ships, Logistics, Ice navigation, Antarctica.  
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## 34-3514

**Mapping New Zealand and Antarctic snowpack from LANDSAT.**

Thomas, J.L., et al, Workshop on Operational Applications of Satellite Snowcover Observations, Final, Sparks, Nevada, April 16-17, 1979. Proceedings. Edited by A. Rango and R. Peterson, Greenbelt, Md., NASA Goddard Space Flight Center, May 1980, p.53-72, 19 refs.

Prowse, T.D., Owens, I.F.

**Snow cover distribution, Sea ice distribution, Snow depth, Snow density, Remote sensing, LANDSAT, Mapping, Computer applications, Monitors.**

Computer mapping, based on the Landsat digital data, can aid the efficient management of one of New Zealand's resources the annual snowpack. The same techniques are effective in supporting antarctic cartography, glaciology, and surface operations. The development of digital analysis and enhancement techniques for the routine semi-automated evaluation of Landsat data is illustrated. The 1979 field program will concentrate on an instrumented snow basin for a water yield study. An outline of this satellite ground program is presented. (Auth.)

## 34-3515

**Application of satellite data for snow mapping in Norway.**

Odegaard, H.A., et al, Workshop on Operational Applications of Satellite Snowcover Observations, Final, Sparks, Nevada, April 16-17, 1979. Proceedings. Edited by A. Rango and R. Peterson, Greenbelt, Md., NASA Goddard Space Flight Center, May 1980, p.93-106, 14 refs.

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**Snow cover distribution, Remote sensing, Meltwater, Runoff forecasting, Mapping.**

## 34-3516

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Schumann, H.H., et al, Workshop on Operational Applications of Satellite Snowcover Observations, Final, Sparks, Nevada, April 16-17, 1979. Proceedings. Edited by A. Rango and R. Peterson, Greenbelt, Md., NASA Goddard Space Flight Center, May 1980, p.107-126, 16 refs.

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**Snow cover distribution, Runoff forecasting, Remote sensing, LANDSAT, Snowmelt, Seasonal variations, Monitors.**

## 34-3517

**Use of satellite data in runoff forecasting in the heavily-forested, cloud-covered Pacific Northwest.**

Dillard, J.P., et al, Workshop on Operational Applications of Satellite Snowcover Observations, Final, Sparks, Nevada, April 16-17, 1979. Proceedings. Edited by A. Rango and R. Peterson, Greenbelt, Md., NASA Goddard Space Flight Center, May 1980, p.127-150.

Orwig, C.E.

**Snow cover distribution, Runoff forecasting, Snow line, Forest land, Cloud cover.**

## 34-3518

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Shafer, B.A., et al, Workshop on Operational Applications of Satellite Snowcover Observations, Final, Sparks, Nevada, April 16-17, 1979. Proceedings. Edited by A. Rango and R. Peterson, Greenbelt, Md., NASA Goddard Space Flight Center, May 1980, p.151-169, 5 refs.

Leaf, C.F.

**Snow cover distribution, Snowmelt, Runoff forecasting, LANDSAT, Remote sensing, Snow hydrology.**

## 34-3519

**Graphical method of stream runoff prediction from LANDSAT derived snowcover data for watersheds in the upper Rio Grande basin of Colorado.**

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Danielson, J.A.

**Runoff forecasting, Snow cover distribution, Meltwater, LANDSAT, Remote sensing, Watersheds, Streams, Snow line.**

## 34-3520

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**Snow cover distribution, Remote sensing, Runoff forecasting, Snowmelt, Cloud cover, Watersheds.**

## 34-3521

**Application of satellite imagery to hydrologic modeling snowmelt runoff in the southern Sierra Nevada.**

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Hall, R.L.

**Runoff forecasting, Snowmelt, Snow cover distribution, Snow hydrology, Remote sensing, Air temperature, Models.**

## 34-3522

**Cost/benefit analysis for the Operational Applications of Satellite Snowcover Observations (OASSO).**

Castruccio, P.A., et al, Workshop on Operational Applications of Satellite Snowcover Observations, Final, Sparks, Nevada, April 16-17, 1979. Proceedings. Edited by A. Rango and R. Peterson, Greenbelt, Md., NASA Goddard Space Flight Center, May 1980, p.239-254, 8 refs.

Loats, H.L., Jr., Lloyd, D., Newman, P.A.B.

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## 34-3523

**Snow extent measurements from geostationary satellites using an interactive computer system.**

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**Snow cover distribution, Remote sensing, Computer applications, Mapping.**

## 34-3524

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Schneider, S.R., Danaher, E.J., Myers, G.I.

**Snow cover distribution, Remote sensing, Mapping, Computer applications.**

## 34-3525

**Review of LANDSAT-D and other advanced systems relative to improving the utility of space data in water-resources management.**

Salomonson, V.V., et al, Workshop on Operational Applications of Satellite Snowcover Observations, Final, Sparks, Nevada, April 16-17, 1979. Proceedings. Edited by A. Rango and R. Peterson, Greenbelt, Md., NASA Goddard Space Flight Center, May 1980, p.281-296, 12 refs.

Hall, D.K.

**Snow water equivalent, Water reserves, LANDSAT, Remote sensing, Microwaves, Spaceborne photography, Computer applications.**

## 34-3526

**History of the Pevek Regional Administration of Hydrometeorology and Environmental Monitoring. [K istorii Pevetskogo territorial'nogo upravleniya po gidrometeorologii i kontroliu prirodnoi sredy].**

Vlasov, E.G., et al, *Vladivostok. Dal'nevostochnyi nauchno-issledovatel'skii gidrometeorologicheskii institut. Trudy*, 1979, Vol.79, p.4-12, In Russian. 7 refs.

Chagulov, A.K.

**Tundra, Ice conditions, Research projects, Meteorology, Arctic landscapes, Arctic Ocean.**

## 34-3527

**Hydrometeorological forecasting. [Nekotorye voprosy gidrometeorologicheskogo prognozirovaniya]. Kupetski, V.N., *Vladivostok. Dal'nevostochnyi nauchno-issledovatel'skii gidrometeorologicheskii institut. Trudy*, 1979, Vol.79, p.13-22, In Russian. Ice navigation, Sea ice, Ice conditions, Ice reporting, Ice forecasting.**

## 34-3528

**Classifying synoptic processes in East Arctic regions during cold periods. [Tipizatsiya sinopticheskikh protsessov vostochnogo raiuna Arktiki v kholodnykh periody].**

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**Synoptic meteorology, Meteorological charts, Polar regions.**

## 34-3529

**Synoptic-statistical method of evaluating the possibility of southerly storm formation and velocity. [Sinoptiko-statisticheskiy sposob otsenki vozmozhnosti vozniknoveniya lizhaka i ego skorosti].**

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**Weather forecasting, Atmospheric disturbances, Wind velocity, Polar regions, USSR—Kolyma, Chukchi Sea.**

## 34-3530

**Fog at Cape Schmidt. [Tumany na myse Shmidtaj]. Makarov, A.K., et al, *Vladivostok. Dal'nevostochnyi nauchno-issledovatel'skii gidrometeorologicheskii institut. Trudy*, 1979, Vol.79, p.61-68, In Russian. 4 refs.**

Pavlov, I.U.N.

**Shores, Ice fog, Fog formation, Forecasting, Arctic landscapes, Arctic Ocean.**

## 34-3531

**Ice loads at the Arctic shores of Chukotka. [Golodnye nagruzki na arkticheskoy poberezh'e Chukotki]. Popova, O.P., *Vladivostok. Dal'nevostochnyi nauchno-issledovatel'skii gidrometeorologicheskii institut. Trudy*, 1979, Vol.79, p.69-72, In Russian. 6 refs.****Shores, Power line icing, Ice loads, Icing rate, USSR—Chukotskiy Peninsula.**

## 34-3532

**Allowing for annual groups of homogeneous development of air temperature anomalies in forecasting practices of the eastern Arctic. [O sposobе ucheta vnutrigodovykh grupp odnorodnogo razvitiia anomalii temperatury vozdukh v prognosticheskoi praktike na vostoche Arktiki].**

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Ivanov, N.A.

**Weather forecasting, Polar regions.**

## 34-3533

**Hydrosynoptic method of compiling sea ice forecasts. [O gidrosinopticheskom sposobе sostavleniya morskikh ledovykh prognozov].**

Kupetski, V.N., *Vladivostok. Dal'nevostochnyi nauchno-issledovatel'skii gidrometeorologicheskii institut. Trudy*, 1979, Vol.79, p.102-108, In Russian. Ice navigation, Sea ice, Ice forecasting, Ice reporting.

## 34-3534

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**Naleds, Sea ice, Fast ice, Ice cracks, Ice roads.**

## 34-3535

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- 34-3537**  
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- 34-3541**  
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- 34-3542**  
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- 34-3545**  
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- 34-3546**  
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- 34-3553**  
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34-3563

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34-3564

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34-3565

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34-3567

**Theoretical analysis of homogeneous crystallization of supercooled water droplets in a constant homogeneous electric field.** (Teoreticheskii raschet homogennoi kristallizatsii pereokhlazhdennykh vodnykh kapel', nakhodiaschchikhsia v postoiannom odnorodnom elektricheskom pole). Klingo, V.V., et al. *Leningrad. Glavnaia geofizicheskaiia observatoriia. Trudy*, 1979, Vol.420, p.15-25. In Russian. 19 refs. Shlykov, V.V. Supercooled clouds, Cloud droplets, Phase transformations, Electric fields.

34-3568

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34-3569

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34-3570

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34-3571

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34-3572

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34-3573

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34-3574

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34-3576

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34-3577

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34-3578

**Uninterrupted periods of strong winds (>15m/s) over West Siberia and Altai territory.** (Neprieryvaia prodolzhitel'nost' burnykh ( $V > 15$  m/s) vetrov na territorii Zapadnoi Sibiri i Altaia). Slutskii, V.I., et al. *Zapadno-Sibirskii regional'nyi nauchno-issledovatel'skii gidrometeorologicheskii institut. Trudy*, 1979, Vol.45, p.31-40. In Russian. 10 refs. Trifonova, L.I., Novikova, T.V. Wind velocity, Atmospheric disturbances, Valleys, Wind direction, Forest tundra, Tundra, Taiga, Shores, USSR—Altai Mountains.

34-3579

**Probability and time characteristics of low air temperature regime of the atmospheric boundary layer above southwestern West Siberia.** (Veroyatnostnye i vremennye kharakteristiki rezhima nizkikh temperatur vozdukh pogrannichnogo sloia atmosfery nad tugo-vostokom Zapadnoi Sibiri). Luchitskaia, I.O., *Zapadno-Sibirskii regional'nyi nauchno-issledovatel'skii gidrometeorologicheskii institut. Trudy*, 1979, Vol.45, p.62-75. In Russian. 9 refs.

Frost forecasting, Icing, Cold weather construction, Construction equipment, Cold weather operation.

34-3580

**Errors occurring in extrapolating the air temperature-wind velocity complex over the open sea area of the shelf.** (Ob oshibkakh ekstrapoliatsii kompleksa temperatura vozdukh-skorost' vetra na otkrytuiu akvatoriiu shelf'a). Borisenko, M.M., et al. *Zapadno-Sibirskii regional'nyi nauchno-issledovatel'skii gidrometeorologicheskii institut. Trudy*, 1979, Vol.45, p.76-78. In Russian. 2 refs.

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34-3581

**Relations between wind velocity and air temperature in Siberia.** (Vzaimosviaz' temperatury vozdukh i skorosti vetra v Sibiri). Drobyshev, A.D., *Zapadno-Sibirskii regional'nyi nauchno-issledovatel'skii gidrometeorologicheskii institut. Trudy*, 1979, Vol.45, p.79-89. In Russian. 20 refs.

Weather forecasting, Atmospheric disturbances, Air temperature, Wind velocity, Frost forecasting.

34-3582

**Snow depth used as a predictor in forecasting mean monthly air temperature anomalies over southern West Siberia.** (Vysota snezhnogo pokrova kak prediktor dlia prognoza anomalii srednemesiachnoi temperatury vozdukh po iugu Zapadnoi Sibiri). Eremin, V.V., et al. *Zapadno-Sibirskii regional'nyi nauchno-issledovatel'skii gidrometeorologicheskii institut. Trudy*, 1979, Vol.45, p.125-129. In Russian. 4 refs.

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Weather forecasting, Air temperature, Snow cover distribution, Snow depth.

34-3583

**Variations of heat content of deep Atlantic waters in the Arctic Basin over a period of years.** (Mnogoletnie izmeneniia teplosoderzhanii glubinnykh atlanticheskikh vod Arkticheskogo basseina).

Bulatov, L.V., et al. *Leningrad. Arkticheskii i antarkhticheskii nauchno-issledovatel'skii institut. Trudy*, 1979, Vol.361, p.6-13. In Russian. 11 refs.

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34-3584

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34-3585

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34-3586

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- 34-3602**  
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34-3610

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**Taiga, River ice, Ice conditions, Icebound rivers, Ice breakup, Ice jams, Ice forecasting, Charts.**

34-3611

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34-3612

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34-3613

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34-3614

**Correlation between physiological-biochemical indices of woody plants and hydrothermal conditions of media.** [O korrelyatsii fiziologo-biokhimicheskikh pokazatelei drevesnykh rastenii s gidrotermicheskimi usloviyami sredy]. Zhibedov, P.M., et al., Botanicheskie issledovaniia za poliarnym krugom (Botanical studies beyond the Arctic circle) edited by L.M. Luk'ianova, Apatity, 1978, p.106-118, In Russian. 20 refs. Zhurov, V.K., Ridenko, S.M. DLC QK86 R91.67

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34-3615

**Water repellent plasticizing admixtures for cements, grouts and concretes.** [Gidrofobno-plastifitsiruiushchie dobavki dlia tsementov, rastvorov i betonov]. Khigeroich, M.I., et al., Moscow, Stroizdat, 1978, 125p., In Russian with English table of contents enclosed. 237 refs. Baier, V.E.

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34-3616

**Icebreakers and coastal winter navigation in Finland.** [Eisbrecher und Winterverkehr an den Küsten Finnlands]. *Seewirtschaft*, May 1980, No.5, p.256-259, In German.

**Ice navigation, Icebreakers, Sea ice distribution, Cold weather operation.**

34-3617

**Dynamics of hailstones.** Zoltán, C., *Időjárás*, Mar.-Apr. 1980, 84(2), p.78-82, In English with Hungarian summary. 5 refs. **Falling bodies, Hailstones, Dynamic properties, Meteorological factors, Wind velocity.**

34-3618

**Optimized linear variable differential transformer displacement transducer for cryogenic use.** Sponagle, N.C., et al., *Review of scientific instruments*, June 1980, 51(6), p.759-761, 2 refs. Atherton, D.L. **Cryogenics, Low temperature research, Electric equipment, Transformers.**

34-3619

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**Glacier surveys, Stereophotography, Glacier flow, Glacier tongues, Italy.**

34-3620

**Particular landforms of glacial deposition in the terminal area of the Pissana Glacier (Rhaetian Alps, Adamello Group).** [Particolari forme di deposito glaciale nell'area terminale del Ghiacciaio del Pissana (Alpi Retiche, gruppo dell'Adamello)]. Smiraglia, C., *Geografia fisica e dinamica quaternaria*, 1979, 2(2), p.167-172, In Italian with English summary. 30 refs. **Glacial deposits, Geomorphology, Landforms, Sediments, Italy—Alps.**

34-3621

**Nucleation of ice by sorption on monodisperse silver iodide particles in the 20-1200 Å diameter size range.** Rosinski, J., et al., *Journal of physical chemistry*, June 12, 1980, 84(12), p.1464-1468, 22 refs. Cooper, G., Kerrigan, T.C.

**Ice nuclei, Ice crystal growth, Nucleating agents, Silver iodide, Particles.**

34-3622

**Water and ice nucleation sites from ion implantation of silicon.**

Stinebaugh, W.H., et al., *Journal of physical chemistry*, June 12, 1980, 84(12), p.1469-1473, 13 refs. Sparlin, D.M., Kassner, J.L.

**Ice crystal nuclei, Ice crystal growth, Heterogeneous nucleation, Ions, Cold chambers, Damage, Silicon.**

34-3623

**Ice core and ice cement effects on soil development, eastern Wright Valley, Antarctica.**

Bockheim, J.G., *New Zealand journal of geology and geophysics*, 1979, 22(4), p.487-493, 20 refs.

**Ground ice, Soil formation, Antarctica—Wright Valley.**

The presence of an ice core or ice cement has arrested soil formation on hummocky drift behind Trilogy, Loop, and C end moraines in eastern Wright Valley. Soils on the Trilogy and Loop hummocks contain fewer salts and are coarser in texture than soils on the associated end moraines. Lack of soil development on hummocks is due to frost heaving and sorting, and while soils on hummocks behind the Loop end moraine may be as old as c. 135,000 y. B.P., they have properties more closely resembling the 18,000-year-old Trilogy soils. Data suggest that soil chronosequences may be invalid where component soils have been disturbed by frost action, and that soils on comparable sites must be used for comparative weathering studies. (Auth.)

34-3624

**International Workshop on the Seasonal Sea Ice Zone, Monterey, California, Feb. 26-Mar.1, 1979.**

Andersen, B.G., ed., *Cold regions science and technology*, Apr. 1980, Vol.2, MP 1292, 357p., For individual papers see 34-3625 through 34-3632 or B-23446, F-23442 through F-23445, and F-23447.

Weeks, W.F., ed., Newton, J.L., ed. **Meetings, Sea ice, Pack ice, Ice pileup, Acoustics, Climatology, Ecology, Oceanography.**

This volume comprises a series of state-of-the-art papers by individual authors, followed by disciplinary panel statements offering research suggestions and identifying particular problems with the discipline under consideration. Several interdisciplinary panel reports are included—air-sea-ice interactions, biological interactions, engineering interactions, and acoustic interactions.

34-3625

**Overview [International Workshop on the Seasonal Sea Ice Zone].**

Weeks, W.F., *Cold regions science and technology*, Apr. 1980, Vol.2, MP 1293, p.1-35, 2 refs.

**Sea ice distribution, Seasonal variations, Meetings, Models, Air water interactions, Ice water interface, Meteorology, Engineering, Oceanography, Offshore drilling.**

This overview is an attempt to summarize the principal conclusions that can be drawn from the workshop. The article is divided into three sections: disciplinary studies (ice, oceanography, meteorology and climatology, biological regimes, hydroacoustics, coastal processes), interdisciplinary studies, and engineering aspects of offshore resource exploration in the polar regions. Modeling of a wide variety of processes is discussed.

34-3626

**Ice characteristics in the seasonal sea ice zone.** Wadhams, P., *Cold regions science and technology*, Apr. 1980, Vol.2, p.37-92, Refs. p.81-87. Includes disciplinary panel statement, p.90-92.

**Fast ice, Wave propagation, Ice breakup, Shear properties, Models, Frazil ice, Young ice.**

Although the bulk of this article is devoted to north polar ice, antarctic sea ice is discussed briefly, primarily to point out the

great scarcity of facts known about it and to stress the entirely different nature of antarctic sea ice from arctic.

34-3627

**Physical oceanography of the seasonal sea ice zone.** McPhee, M.G., *Cold regions science and technology*, Apr. 1980, Vol.2, MP 1294, p.93-132, Refs. p.116-118. Includes disciplinary panel statement, p.119-132.

**Polynyas, Oceanography, Sea ice, Ice water interface, Seasonal variations, Salinity, Ice edge.**

This literature review is divided into four parts. The first deals with the role of continental shelves at the margins of polar oceans in maintaining water masses, the second emphasizes how the ocean might affect the advance and retreat of ice not contained by land, the third describes some special conditions found in the shear zone, and the fourth is a brief look at experimental techniques and instruments.

34-3628

**Meteorology and climatology of the seasonal sea ice zone.**

Barry, R.G., *Cold regions science and technology*, Apr. 1980, Vol.2, p.133-156, Refs. p.147-150, 156. Includes disciplinary panel statement.

**Sea ice, Pack ice, Seasonal variations, Atmospheric circulation, Polynyas, Meteorology, Climatic factors, Ice-air interface.**

Since the seasonal sea ice zone is defined by the seasonal range of ice limits, its meteorological characterization is not readily described in a systematic manner. Moreover, the ice limits are not solely determined by meteorological factors, nor does the SSIZ set up a unique climatological regime. Accordingly, this literature survey reviews selected aspects of large-scale circulation processes and examples of specific regional interactions both in the Arctic and Antarctic. Problem areas are then identified.

34-3629

**Interrelationships between the seasonal sea ice and biological regimes.**

Alexander, V., *Cold regions science and technology*, Apr. 1980, Vol.2, p.157-184, Refs. p.175-178. Includes disciplinary panel statement.

**Sea ice, Algae, Ecology, Biomass, Seasonal variations.**

The relation of seasonal sea ice with biological regimes is discussed under the following headings: ice flora, ice-edge phytoplankton, benthos, ice, ice-air interface, ice-ice interface, and ice-invertebrates, fishes, birds and mammals. The current state of knowledge is reviewed and suggestions are made for further needed research.

34-3630

**Arctic hydroacoustics.**

Diachok, O., *Cold regions science and technology*, Apr. 1980, Vol.2, p.185-207, Refs. p.199-201. Includes disciplinary panel statement.

**Ice acoustics, Sound waves, Noise (sound), Sea ice, Pack ice, Ice edge, Ice water interface, Wave propagation.**

34-3631

**Shore ice pile-up and ride-up: field observations, models, theoretical analyses.**

Kovacs, A., et al., *Cold regions science and technology*, Apr. 1980, Vol.2, MP 1295, p.209-298, Refs. p.282-288. Includes disciplinary panel statement.

Sodhi, D.S.

**Shores, Coastal topographic features, Ice pileup, Sea ice, Fast ice, Pressure ridges, Mathematical models.**

34-3632

**Numerical modeling of sea ice in the seasonal sea ice zone.**

Hibler, W.D., III, *Cold regions science and technology*, Apr. 1980, Vol.2, MP 1296, p.299-356, Refs. p.317-320. Includes disciplinary panel statement.

**Sea ice, Seasonal variations, Computerized simulation, Ice models, Mathematical models.**

Various approaches to modeling sea ice have been tried by investigators; the author discusses the suitability of different types of simulations for particular research goals. Empirical studies are also reviewed. Literature covered relates to ice in both arctic and antarctic regions.

34-3633

**Polar atmosphere-ice-ocean processes: a review of polar problems in climate research.**

Polar Group, *Reviews of geophysics and space physics*, May 1980, 18(2), p.525-543, Refs. p.540-543.

Baker, D.J., Radok, U., Weller, G.

**Research projects, Climatology, Oceanography, Sea ice, Ice-air interface, Air water interactions, Models.**

Interactions of the atmosphere, ice, and the oceans in the polar regions are reviewed in the context of global climate. Cryospheric processes and their feedback mechanisms are discussed, with emphasis on sea ice, the polar energy balance, meridional heat exchange processes in both the atmosphere and the ocean, and the paleoclimatic record stored in ice sheets and snow. Present modeling capabilities and parameterizations of polar ice, atmosphere, and ocean processes and their interactions are described. Further advances in our understanding of polar processes call for studies of ice dynamics and of energy transfers by radiation, convection, and advection, in both atmosphere and ocean. The relationship of the energy transfers to mesos-

cale and large-scale circulation features, to the moving pack ice boundaries, and to the annual growth and decay of ice in both hemispheres affects the energy balance and circulation and is a key factor in the global climate system. Further progress will demand systematic monitoring of climate processes in both polar regions, using an increasingly sophisticated satellite technology for the establishment of a polar climate data set (Auth).

#### 34-3634 Development of a high-speed rotary snowplow (HTR-700).

Sasaki, T., et al. *U.S. Army Cold Regions Research and Engineering Laboratory*, Mar. 1979, *TR 309-23*, p. ADA-086 586. Translation from Engineering report, Vol. 6, No. 46, p. 38-50.  
Horikawa, G.

#### Snow removal, Snow accumulation, Snowdrifts, Equipment.

The development of a rotary snowplow designed to remove 3000 tons hour of snow at a speed of 20 km/hr is described. The four-wheel-drive vehicle was designed for use in areas of Hokkaido where snow accumulation and drifting are a major problem. It is powered by a 700-hp diesel engine and weighs about 22,000 kg. The snow removal equipment consists of a two-stage blower with cone ribbon screw type auger. The device has been tested in heavy snow conditions with snowdrifts and drifting, with excellent results and only minor mechanical problems.

#### 34-3635

Evaluating reliability of steel structures at low temperatures. [K otsenke nadezhnosti stal'nykh stroitel'nykh konstruktov pri nizkikh temperaturakh], Sil'vestrov, A.V., et al. *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedenii. Stroitel'stvo i arkhitektura*, 1980, No. 3, p. 9-13, In Russian. 9 refs.  
Moiselechik, E.A.

Steel structures, Cold weather performance.

#### 34-3636

More accurate experimental value of shear strength of grounds. [K utocneniiu eksperimental'nykh znachenii soprotivleniia gruntov sdvigu], Zhikhovich, V.V., *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedenii. Stroitel'stvo i arkhitektura*, 1980, No. 3, p. 21-23, In Russian. 2 refs.  
Clay soils, Shear strength, Test equipment, Accuracy.

#### 34-3637

Frost resistant concretes with combined structure-modifying admixtures. [Morozostoikie betony s kompleksnymi modifikatorami struktury], Gen', O.P., *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedenii. Stroitel'stvo i arkhitektura*, 1980, No. 3, p. 58-61, In Russian. 3 refs.  
Air entrainment, Winter concreting, Concrete admixtures, Concrete strength, Concrete freezing, Frost resistance.

#### 34-3638

Recording geothermal flow by thermal aerial survey. [O registratsii geotermal'nykh potokov teplovoi aerost'emko], Shilin, B.V., et al. *Akademiia nauk SSSR. Doklady*, 1980, 252(2), p. 321-323, In Russian. 7 refs.  
Gornyi, V.I., Karizhenskii, V.E.  
Aerial surveys, Geothermy, Infrared photography, Photointerpretation, Airborne equipment.

#### 34-3639

Microbiological description of northern taiga bog-podzolic soils. Shamin, A.A., et al. *Soviet soil science*, Mar-Apr. 1979, No. 2, p. 151-156, Translated from *Pochvovedenie*. 8 refs.  
Varfolomeev, L.A.  
Taiga, Landscape types, Permafrost distribution, Cryogenic soils, Forest soils, Soil microbiology.

#### 34-3640

Morphogenetic profile analysis as a basis for the reconstruction of soil formation conditions (as exemplified by the permafrost soils of the Nercha Basin). Gugalinskaiia, L.A., et al. *Soviet soil science*, May-June 1979, No. 3, p. 261-273, Translated from *Pochvovedenie*. 18 refs.  
Alifanov, V.M.  
Cryogenic soils, Soil formation, Soil profiles, Forest land, Steppes.

#### 34-3641

Aerial gamma survey of snow cover in mountains. [Ob aviatсионной гамма-съемке снежного покрова в горах], Nikiforov, M.V., *Meteorologiya i gidrologiya*, Jan. 1980, No. 1, p. 77-83, In Russian with English summary. 10 refs.

Snow surveys, Aerial surveys, Gamma irradiation, Snow cover distribution, Snow depth, Snow water equivalent.

#### 34-3642

Pressure of ice field adfreezing to cylindrical supports of offshore oil well platforms with water-level fluctuations. [Vozdel'stviie primerzshogo ledianogo polia pri izmenenii urovnia vody na tsilindricheskie opory neftepromyslovyykh platform], Vershinin, S.A., et al. *Neftepromyslovoe stroitel'stvo*, 1980, No. 4, p. 9-11, In Russian.  
Evdokimov, G.N.

Oil wells, Offshore structures, Supports, Ice loads, Water level.

#### 34-3643

Speed of icebreaker movement in the Azov Sea. [Ledoprokhodimost' Azovskogo moriia], Siniurin, I.U., *Morskoi flot*, 1980, No. 3, p. 20-21, In Russian.  
Ice navigation, Icebreakers, Velocity, USSR—Azov Sea.

#### 34-3644

Ice breaking rescue vessel. [Ledokol'noe spasatel'noe sudno], *Morskoi flot*, 1980, No. 3, p. 29, In Russian.  
Icebreakers, Ice navigation, Rescue operations, Rescue equipment.

#### 34-3645

Estimated glaze ice and wind loads at the earth's surface for the contiguous United States. [Ledopokhodimost' Azovskogo moriia], Tattelman, P., et al. *U.S. Air Force. Cambridge Research Laboratories. Air Force surveys in geophysics*, Oct. 16, 1973, No. 277, 35p., AD-775 068, AFRL-TR-73-0646, 4 refs.  
Gringorten, I.I.

Ice storms, Wind pressure, Glaze, Ice loads, Loads (forces), Forecasting, Ice cover thickness, Statistical data, United States.

#### 34-3646

Draft environmental impact statement, Prudhoe Bay Oil Field Waterflood Project. U.S. Army Corps of Engineers, Alaska District, Anchorage, Alaska, June 1980, 2 vols., Refs. passim. No microfiche available.  
Pipelines, Cold weather construction, Environmental impact, Environmental protection, Legislation, Pollution, Research projects, United States—Alaska—Prudhoe Bay.

#### 34-3647

Vehicles for conditions in the North. *U.S. Army Foreign Science and Technology Center. Technical translation*, Mar. 1980, FSTC-HT-1271-79, 2p., Translation from *Voenna tekhnika*, 1974, No. 1, p. 31.  
Vehicles, Thermal insulation, Polar regions, Design, Engines.

#### 34-3648

Little Ice Age: Northern Hemisphere average observations and model calculations. Robock, A., *Science*, Dec. 21, 1979, Vol. 206, p. 1402-1404, 30 refs.  
Climatic changes, Ice age theory, Volcanic ash, Solar radiation, Models.

#### 34-3649

Decay kinetics of excess electrons in crystalline ice. Warman, J.M., et al. *Journal of physical chemistry*, May 15, 1980, 84(10), p. 1240-1248, 50 refs.  
Haas, M.P. de, Verberne, J.B.  
Ice crystals, Ions, Dynamic properties, Electrons, Decay.

#### 34-3650

Mechanism of formation of visible-absorbing excess electrons in crystalline ice near 273K. Gillis, H.A., et al. *Journal of physical chemistry*, May 15, 1980, 84(10), p. 1248-1252, 17 refs.  
Teather, G.G., Ross, C.K.  
Ice crystals, Physical properties, Temperature effects, Heavy water, Ions, Electrons.

#### 34-3651

Absolute rate constant of the reaction OH + H2O2 to HO2 + H2O from 245 to 423K. Keyser, L.F., *Journal of physical chemistry*, June 26, 1980, 84(13), p. 1659-1663, 29 refs.  
Hydrogen bonds, Low temperature research, Temperature effects.

#### 34-3652

Portable drilling equipment for shallow permafrost sampling. Veillette, J.J., et al. *Canada. Geological Survey. Paper*, 1980, No. 79-21, 35p., In English with French summary. 30 refs.  
Nixon, F.M.

Drills, Permafrost physics, Core samplers, Frozen ground strength, Compressive properties, Equipment.

#### 34-3653

Glacial to interglacial changes in ocean chemistry. Broecker, W.S., Jan. 1980, 27p., + figs., + append. Prepared for CIMAS Symposium. 23 refs.  
Sea water, Water chemistry, Glacial meteorology, Paleoclimatology, Marine deposits, Ice cores, Drill core analysis.

#### 34-3654

Classical European glacial stages: correlation with deep-sea sediments. Kukla, G., *Nebraska Academy of Sciences. Transactions*, 1978, Vol. 6, p. 57-93, Refs. p. 88-93.  
Alpine glaciation, Radioactive age determination, Marine deposits, Paleoclimatology, Pleistocene, Loess, Climatic factors, Bottom sediment.

#### 34-3655

Dynamics of snow and ice masses. Colbeck, S.C., ed. MP 1297, New York, Academic Press, 1980, 468p., Numerous refs. passim., Numerous refs. For individual papers see 34-3656 through 34-3662 or F-23452 through F-23455.  
DLC GB2403.2 D95

Ice sheets, Ice shelves, Glaciers, Sea ice, Icebergs.

This book reviews the dynamical aspects of snow and ice masses on the geophysical scale. It is divided into seven chapters, each of which describes the basic features of a particular snow or ice mass. In each chapter a conceptual framework is established on a physical basis, and a mathematical description is provided with as many references to the technical literature as space allows. No attempt is made to address particular applications of the information, but the physical and mathematical descriptions of the properties and processes provide for both an understanding of snow and ice masses and a basis through which particular problems can be addressed.

#### 34-3656

Ice sheets and ice shelves. Paterson, W.S.B., *Dynamics of snow and ice masses*, edited by S.C. Colbeck, New York, Academic Press, 1980, p. 1-78, Refs. p. 73-78.  
GB2403.2 D95

Ice sheets, Ice shelves, Ice mechanics, Ice models, Ice temperature.

Ice sheet dynamics are discussed primarily in terms of the Antarctic and Greenland ice sheets. The treatment is subdivided into the following topics: theoretical background, flow of ice sheets; numerical modeling of ice sheet changes; flow of ice shelves; temperature in ice sheets and ice shelves; and instabilities in ice sheets.

#### 34-3657

Temperate valley glaciers. Raymond, C.F., *Dynamics of snow and ice masses*, edited by S.C. Colbeck, New York, Academic Press, 1980, p. 79-139, Refs. p. 135-139.  
DLC GB2403.2 D95  
Valleys, Glaciers, Glacier surges, Glacier mass balance, Glacier flow, Glacier oscillation, Rheology, Creep, Stresses.

#### 34-3658

Sea ice growth, drift, and decay. Hibler, W.D., III, MP 1298, *Dynamics of snow and ice masses*, edited by S.C. Colbeck, New York, Academic Press, 1980, p. 141-209, Refs. p. 205-209.  
DLC GB2403.2 D95

Drift, Sea ice, Thickness, Ice cover thickness, Ice surface, Ice formation, Models, Ice strength, Simulation. This review of the dynamics of sea ice is organized into the following sections: general characteristics of sea ice; physics of sea ice growth, drift and decay (ice thickness distribution, thermal processes and ice drift and deformation); and numerical simulation of sea ice growth, drift and decay.

#### 34-3659

Iceberg drift and deterioration. Robe, R.Q., *Dynamics of snow and ice masses*, edited by S.C. Colbeck, New York, Academic Press, 1980, p. 211-259, Refs. p. 257-259.  
DLC GB2403.2 D95  
Icebergs, Drift, Ice melting.

This review comprises five aspects of icebergs: their sources; global drift patterns; local iceberg drift (forces such as wind and water drag and Coriolis force); deterioration (wave effects, heat transfer from water and radiation); and future trends in research.

34-3660

**Freshwater ice growth, motion, and decay.**  
Ashton, G.D., MP 1299. Dynamics of snow and ice masses, edited by S.C. Colbeck, New York, Academic Press, 1980, p.261-304, Refs. p.302-304.  
DLC GB24032 D95  
Lake ice, River ice, Frazil ice, Rivers, Ice jams, Ice breakup, Ice melting, Ice floes, Ice formation.

34-3661

**Seasonal snow cover.**  
Male, D.H., Dynamics of snow and ice masses, edited by S.C. Colbeck, New York, Academic Press, 1980, p.305-395.  
DLC GB24032 D95  
Snow thermal properties, Snow mechanics, Snow drifts, Turbulent diffusion, Snow density, Snow accumulation.

A review of the literature, this article deals with the following aspects of snow cover: metamorphism of dry snow, equilibrium and temperature gradient metamorphism, properties of dry snow, form mechanical and thermal, blowing snow, turbulent diffusion, saltation, sublimation, accumulation and erosion, snowmelt, and wet snow.

34-3662

**Avalanche release, motion, and impact.**  
Pella, R.L., Dynamics of snow and ice masses, edited by S.C. Colbeck, New York, Academic Press, 1980, p.397-462, Refs. p.456-462.  
DLC GB24032 D95  
Avalanches, Avalanche triggering, Avalanche mechanics, Shear stress.

34-3663

**Investigation of aerosol fallout in long-range pollutant transport.** [Issledovanie vypadani aerosolov pri dal'nem perenosе zagriazniashchikh veshchestv]. Zhigalovskaya, T.N., et al. *Meteorologiya i gidrologiya*, 1980, No.4, p.47-51.  
Nazarov, I.M., Fridman, S.D., Renne, O.S.  
Snow impurities, Aerosols, Air pollution, Metals.

34-3664

**Short-range forecasting of fall and winter ice dam levels on the lower Volga at Chernyy Yar.** [Kratkosrochnyy prognoz osennye-zimnikh zatonykh urovnei na nizhnem Volge po punktu Chernyy Yar]. Bukharitsin, P.I., *Meteorologiya i gidrologiya*, 1980, No.4, p.90-95. In Russian with English summary. 25 refs.  
Ice dams, Ice jams, River ice, Seasonal variations, USSR—Volga River.

34-3665

**USCGC Polar Sea cruise report: Deep Freeze 80.** U.S. Coast Guard, Seattle, Washington, May 1980, 96p.  
Ice breaking, Icebreakers, Ice navigation, Ships.  
This report on the Coast Guard cutter Polar Sea's activities during Operation Deep Freeze 80 is divided into the following sections: ship operations; air operations; navigation; communications; science; engineering; administration; supply and logistics; medical; public relations; personnel; and recommendations.

34-3666

**Timan-Pechora Complex. Construction problems.** [Timano-Pechorskii kompleks. Problemy stroitel'stva]. Kochurin, N.N., Syktyvkar, Komi knizhnoe izd-vo, 1979, 167p., In Russian with English table of contents enclosed.  
Arctic landscapes, Economic development, Petroleum industry, Construction, Forestry, Mining, Environmental protection, Urban planning.

34-3667

**Ship icing.** [Obledenenie sudov]. Aksutin, I.R., Leningrad, Sudostroenie, 1979, 127p., In Russian with English table of contents enclosed. 86 refs.  
Ship icing, Icing rate, Ice accretion, Ice prevention.

34-3668

**Far North: nature and man. Prospects of economic development.** [Sever: priroda i chelovek. Perspektivy razvitiya]. Krut'kov, V.V., Moscow, Nauka, 1979, 127p., In Russian with English table of contents enclosed. 43 refs.  
Arctic landscapes, Natural resources, Economic development, Environmental protection, Construction, Agriculture, Cryogenic soils, Vegetation.

34-3669

**Cross-section, velocity, and bedload data at two erosion sites on the Tanana River near Fairbanks, Alaska, 1979.**  
Barrows, R.L., U.S. Geological Survey. Open-file report, 1980, No.80-699, 32p., 4 refs.  
River flow, Shore erosion, Loads (forces), Sediment transport, Particle size distribution, Water erosion, United States—Alaska—Tanana River.

34-3670

**Ice problems at a cooling water intake in a tidal estuary at Langan, N.S.**  
Skarborn, S., et al., *Canadian journal of civil engineering*, June 1980, 7(2), p.225-232, 11 refs.  
Korol, T.  
Ice loads, Water intakes, Impact strength, Offshore structures, Cooling systems, Ice solid interface, Salt water, Water waves, Design, Ice conditions.

34-3671

**Dynamic response of bridge piers to ice forces.**  
Montgomery, C.J., et al., *Canadian journal of civil engineering*, June 1980, 7(2), p.345-356, 19 refs.  
Gerard, R., Lipsett, A.W.  
Piers, Bridges, Ice loads, Impact strength, Dynamic loads, Ice breakup.

34-3672

**Plotting through the pack; radar resistant ice.**  
Haines, S.A., *Science dimension*, 1980, 12(3), p.16-19. In English and French.  
Ice navigation, Remote sensing, Pack ice, Ice conditions, Ice strength, Ice cover thickness, Ice water interface, Sounding, Helicopters.

34-3673

**Desalination of brackish water by spray freezing: progress report 1978-79.**  
Spyker, J.W., Saskatchewan Research Council Technical report, May, 1980, No.106, 116p., 32 refs.  
Desalting, Sea spray, Artificial freezing, Salt water.

34-3674

**Petrographic observations of ice samples from Taylor Glacier, Antarctica.**  
Robinson, P.H., *New Zealand antarctic record*, 1979, 2(1), p.17-19, 2 refs.  
Glacier ice, Stratification, Rocks, Regelation, Antarctica—Taylor Glacier.

There are basically two petrographically-defined zones in the ice of Taylor Glacier. (1) the dominant, debris-free, weakly foliated, very fine to fine-grained, bubbly ice, and (2) the subordinate, restricted englacial and basal debris-bearing, strongly foliated, fine to medium-grained, alternating bubbly and clear ice. The bubbly ice zone gains its structure from "normal" primary stratification of the snow and ice in the accumulation areas and subsequent modification by densification and flow. The origin of the alternating bubble and clear ice layers is rather more complex. Possibilities include: (1) melting by frictional drag along faults subparallel to the glacier bed, where bubbles escaping from this melted layer float upwards and are subsequently refrozen, leaving behind clear ice and (2) bubble layering in "cold" glacier ice was considered to result from a redistribution of bubbles during flow along primary stratification planes. Regelation by englacial fractional drag may be a likely mode of formation of clear, debris-free ice layers of Taylor glacier. However, it does not explain the debris-rich alternating bubbly and clear ice layers towards the base of the ice margin. A more probable origin for such zones is pressure melting and regelation at the glacier sole. (Auth. mod.)

34-3675

**Saline discharge at the snout of Taylor Glacier, Antarctica.**  
Keys, J.R., *New Zealand antarctic record*, 1979, 2(1), p.29-31, 6 refs.  
Glacier melting, Glacial hydrology, Meltwater, Salt water, Salinity, Antarctica—Taylor Glacier.

At intervals of one to a few years, during the "non summer" months, some thousands of cubic metres of salty water flows out from either a crevasse at the northern corner of the snout of Taylor Glacier, or a source beside the glacier near this crevasse. This fluid freezes to form an outwash fan (cone), or platform, of saline ice on the debris-covered mound and delta beside the glacier. The saline ice fan is usually various shades of orange in colour, due to small amounts of hydrated iron oxides and silt. In the summers and years between such discharge events, the ice fan ablates until there is no saline ice remaining on the mound or delta. However, salty orange englacial layers, present throughout the history of each individual discharge event, remain around the discharge site in the glacier. It is believed that these layers represent crevasses that were flooded with salty water, which then froze, during past discharge events. Field investigations were carried out in Oct. 1978 and Jan. 1979 and a simple model for the discharge was drawn up. (Auth. mod.)

34-3676

**Eastward ice advances in Wright Valley, Antarctica (Comment).**  
Robinson, P.H., *New Zealand antarctic record*, 1979, 2(1), p.22-24, 7 refs. Includes reply by G.G.C. Claridge and I.B. Campbell.  
Glacier flow, Antarctica—Wright Valley.

The author postulates a small, hitherto undescribed granite outcrop to the east of the Wright Upper Glacier as the provenance of granite erratics described by Claridge and Campbell (1978), who reply in rebuttal of the hypothesis.

34-3677

**Hardness of ice and a solar ice melter.**  
Robinson, W.H., et al., *New Zealand antarctic record*, 1979, 2(2), p.4-8, 4 refs.  
Bibby, B., Tucker, A., Haskell, T., Rodgers, T.  
Ice hardness, Sea ice, Solar radiation, Equipment, Ice melting.

A simple rig for measuring the displacement of a 6.35 mm diameter steel ball into ice under load (10 to 80 N) was developed in the laboratory and used on the ice at Taylor Glacier (near Finger Mountain at the snout) and on the sea ice in McMurdo Sound. As expected the depth of indentation,  $h$ , into the ice varied with time,  $t$ . When the results were analyzed to produce a stress-strain rate curve, they were found to be in good agreement with the dislocation model of creep, where the strain rate is proportional to applied stress. Another project was the testing of a solar collector designed to melt snow or ice. Over a 6-hour period (1000 to 1600 hrs. 22 Nov. 1978) the 0.5 sq meter collector produced 3.1-2 litres of water from snow, with the surrounding air temperature at  $-7$  to  $-15^{\circ}\text{C}$ . (Auth. mod.)

34-3678

**Impact of "extreme" events on the Dry Valleys area.**  
Chinn, J.J.H., *New Zealand antarctic record*, 1979, 2(2), p.9-13, 3 refs.  
Glacial hydrology, Glacier melting, Microclimatology, Antarctica—Wright Valley, Antarctica—Vanda Lake, Antarctica—Onyx River.

Because the Dry Valleys of Antarctica are climatically sensitive environments where the effects of rare extreme events may create substantial and enduring features, the glaciology hydrology research group reports here two such events and their immediate effects: "heat waves" (temperatures five degrees above normal during January), an unusually heavy snowfall, and an unexplained heavy flow in the Onyx River.

34-3679

**Concreting in Antarctica.**  
Varcoe, G.E., *New Zealand antarctic record*, 1979, 2(2), p.14-15, 1 ref.

**Concrete aggregates, Construction materials, Concretes, Concrete strength, Antarctica—Ross Island.**  
This note summarizes the results of concreting in Antarctica, using local aggregate and simple techniques. During the 1977-78 season (Varcoe 1978) various mixtures made with local aggregates were tested in order to determine strength and workability of mix. The aggregate selected as a result of these tests was no longer available in 1979-80, and the only aggregate available lacked "fines". Despite sub-zero temperatures and poor quality of local aggregate (generally vesicular volcanic scoria and vesicular tuff) satisfactory open-air concreting, using only very simple techniques, is possible at Ross Island. If accurate and predictable control of mix is required, a screen and crusher must be used to control quality of aggregate. (Auth. mod.)

34-3680

**Undulations on the McMurdo Ice Shelf near Scott Base, Antarctica.**  
Holdsworth, G., et al., *New Zealand antarctic record*, 1979, 2(2), p.16-22, 17 refs.  
Heine, A.J.

**Surface roughness, Surface properties, Ice shelves, Stresses, Ice deformation, Plastic deformation, Ice density, Ice models, Antarctica—McMurdo Sound.**  
Near Scott Base, a restricted area of the McMurdo Ice Shelf shows prominent surface undulations. The deformation is evidently caused by compressive forces which are transmitted horizontally through the ice shelf as it flows obliquely into the coastline northeast of Pram Point. The ice is assumed to be everywhere free of the sea bed, and the deformation begins as the horizontal compressive stress reaches a critical value to initiate an instability. Some borehole data are presented together with some surface strain rates in an attempt to quantify the deformation. In order to do this successfully, we conclude that more observations are necessary. (Auth.)

34-3681

**Metallurgical examination of some ice screws.**  
Redfern, R.M., *New Zealand antarctic record*, 1979, 2(2), p.23-29, 4 refs.

**Low temperature tests, Metals, Mechanical tests.**  
"Salewa" ice screws and pitons have been manufactured from both medium and low carbon steels. The former material has a tensile strength of the order of 800 MPa and is likely to give rise to brittle failures at low temperatures, while the latter has a lower strength of the order of 540 MPa, but is not likely to fail in a brittle manner at low temperatures unless strain-aged. The "Chouard" ice screw was made from a heat-treated high strength alloy of the order of 1230 MPa and is unlikely to give rise to brittle failure at low temperatures. The "Inter-Alp" ice screw examined was made from the lowest strength material (of the order of 300 MPa) of the samples, yet poor metallurgical practice has also given rise to doubts concerning its ductile/brittle behavior at low temperatures. (Auth.)



- 34-3682**  
Laboratory investigation of river shoreline ice jam forces. Stewart, D.M., Bozeman, Montana State University, May 1980, 172p., M.S. thesis. 12 refs.  
Ice jams, Ice loads, Impact strength, Ice mechanics, Shear strength, Ice friction, River ice, Floating ice, Experimentation, Ice models.
- 34-3683**  
Optimal Stefan type problem. (Ob odnot optimal'noi zadache tipa Stefan). Iurii, A.D., Akademiia nauk SSSR. Doklady, 1980, 251(6), p.1317-1321, In Russian. 10 refs.  
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- 34-3708**  
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- 34-3727**  
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Ice sheets are inhomogeneous; properties vary strongly with depth. Theoretical treatment of plates with properties varying perpendicular to the plate has now been satisfactorily developed for floating ice sheets. However, other problems are still waiting for solutions. The use of model ice is developing rapidly. Some suggestions of how to analyze such ice are made. Break-through loads on ice sheets diminish with duration of loading, but no satisfactory solution is available based upon classical procedures of applied mechanics.
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34-3730

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34-3734

**Finite element method simulation of large ice mass flow behaviour.** Emery, J.J., et al, Symposium on Physics and Mechanics of Ice, Copenhagen, Aug. 6-10, 1979. Proceedings. Edited by P. Tryde, Berlin, Springer-Verlag, 1980, p.82-92, 16 refs.  
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34-3735

**Experience gained by use of extensive ice laboratory facilities in solving ice problems.** Frankenstein, G.E., MP 1301, Symposium on Physics and Mechanics of Ice, Copenhagen, Aug. 6-10, 1979. Proceedings. Edited by P. Tryde, Berlin, Springer-Verlag, 1980, p.93-103, 12 refs.  
**Ice mechanics, Ice navigation, Ice conditions, Offshore structures, Ice loads, Floating ice, Icing, Ice pileup, Flooding, Laboratory techniques.**  
The discovery of offshore oil in ice-infested waters has caused major concern to the design engineers. Some of the problems associated with offshore structures are ice forces, icing, and pile-up. Laboratory facilities have and will continue to solve many of the ice problems. The ice problem at navigation locks, for example, has been solved primarily due to laboratory studies. Also, the results of ice forces due to ice uplift have been virtually eliminated by controlled studies. Laboratories are becoming larger and more sophisticated. This should result in an increase in laboratory studies and a decrease in field studies. Solutions will come faster because conditions can be precisely controlled.

34-3736

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Using expressions for ice-shelf creep derived by Weertman and Thomas, a general method is developed for calculating equilibrium thickness profiles, velocities, and strain-rates for any ice shelf. This is done first for an unconfined glacier tongue, and the result agrees well with data for Erebus Glacier tongue (Holdsworth, 1974). Anomalies occur within the first 3 km after the hinge zone, and these are too great to be the result of local bottom freezing; they are probably due to disturbance of the velocity field. Secondly, profiles are calculated for bay ice shelves. Thickness gradients are largely independent of melt-rate or flow parameters but are inversely proportional to the width of the bay. Data from antarctic ice shelves agree with this result both qualitatively and quantitatively. The theory is readily extended to ice shelves in diverging and converging bays. An ice shelf in a diverging bay can only remain intact if it is thick enough and slow enough to creep sufficiently rapidly in the transverse direction. If it cannot, it will develop major rifts or will come adrift from the bay walls. It is then likely to break up. The presence of ice rises or areas of grounding towards the seaward margin can radically alter the size of the ice shelf which can form. The theory could be used as a starting point to study non-equilibrium behaviour. (Auth.)
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The potential of towing icebergs to arid regions in the Southern Hemisphere is reviewed. Formidable technical problems exist, some proposed solutions are listed. However, very little has been done to test the technology proposed. Towing, insulation, routes, and other aspects of iceberg-towing technology should be investigated by a trial tow to Western Australia, the area most favorably located for southern iceberg delivery.
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Ice mechanics, Ice creep, Ice deformation, Compressive properties, Ice physics, Ice shelves, Profiles, Ice heat flux, Ice cover thickness, Antarctica—Antarctic Peninsula.  
Profile surveys are presented of four ice rises on the east coast of the Antarctic Peninsula. On Butler Island velocity measurements were also made. The ice rises behave as miniature ice caps frozen to flat horizontal bedrock and provide a simple system for the study of law of ice flow. Deformation is principally by shear through the ice mass. Each ice rise is bounded on one side by ice shelf and on the other side by open sea. Towards open sea the profiles are found to agree well with steady-state theoretical profiles. Towards ice shelf the profiles are elongated, and they deviate from the theoretical profile. This may be due to compressive stress in the ice shelf, causing migration of the grounding line down sloping bedrock. No significantly anomalous behaviour is found in the summit region (Auth. mod.)
- 34-3797**  
Creep of ice, geothermal heat flow, and Roosevelt Island, Antarctica.  
Thomas, R.H., et al, *Journal of glaciology*, 1980, 25(91), p.47-60, 33 refs., In English with French and German summaries.  
MacAyeal, D.R., Bentley, C.R., Clapp, J.L.  
Ice creep, Ice mechanics, Geothermy, Heat transfer, Velocity, Recrystallization.  
Measurements of ice velocity, thickness, and surface topography on the large ice rise known as Roosevelt Island are consistent with Glen's flow law. Assuming that near the center of the ice rise, where the effects of recrystallization are probably negligible, the ice behaves in the same way as randomly-oriented polycrystalline ice, then the geothermal flux  $G$  in this area is approximately  $0.06 \text{ W/sq m}$ . In the absence of measurements of deep-ice temperatures, the distribution of  $G$  across the ice rise cannot be determined. However, the simplest interpretation of the movement data requires: (1) a linear increase in  $G$  from  $0.05 \text{ W/sq m}$  on the north-east side of Roosevelt Island to  $0.07 \text{ W/sq m}$  in the south-west, and (2) strain-rate enhancement, due to recrystallization, that increases outward from the center of the ice rise to reach a maximum value of approximately two near the edges. The calculated values of  $G$  are larger than the world average, but this is consistent with the probably granitic core beneath Roosevelt Island. An increase in  $G$  of  $0.02 \text{ W/sq m}$  in a distance of 600 km would require an increase in granite thickness of about 5 km. (Auth. mod.)
- 34-3798**  
Thermohydrodynamic model of an ice sheet.  
Verbitskii, M.I.A., et al, *Journal of glaciology*, 1980, 25(91), p.61-67, 5 refs., In English with French and German summaries.  
Chalikov, D.V.  
Thermodynamic properties, Hydrodynamics, Glacier flow, Thermal conductivity, Ice sheets, Ice surface, Ice temperature, Ice temperature, Velocity, Mathematical models.  
The purpose of this paper is to consider an ice-sheet model based on joint solution to the dynamic equations and equations of heat conductivity in which the surface relief is one of the unknown functions. The proposed model is applicable to calculation of the antarctic ice sheet. Results of a numerical experiment for present values of the temperature of the ice surface and precipitation, as well as for their separate and simultaneous increase by 2, 4, or 6 deg and 10, 20 or 30%, are given. (Auth.)
- 34-3799**  
Glaciological investigations of the tropical Quelccaya ice cap, Peru.  
Thompson, L.G., *Journal of glaciology*, 1980, 25(91), p.69-84, 13 refs., In English with French and German summaries.  
Mountain glaciers, Glaciology, Snow stratigraphy, Glacier surveys, Glacial meteorology, Particles, Ice cores, Seasonal variations, Snow temperature, Paleoclimatology, Air temperature.
- 34-3800**  
Microwave brightness of polar firn as measured by Nimbus 5 and 6 ESMR.  
Chang, A.T.C., et al, *Journal of glaciology*, 1980, 25(91), p.85-91, 19 refs., In English with French and German summaries.  
Choudhury, B.J., Gloersen, P.  
Microwaves, Firn, Brightness, Snow optics, Remote sensing, Temperature effects.

The microwave emission from a half-space medium, characterized by coordinate dependent scattering and absorbing centers, has been calculated by numerically solving the radiative transfer equation by the method of invariant imbedding. A Mie scattering phase function and surface polarization have been included in the calculation. Also included are the physical temperature profile and the temperature variation of the index of refraction for ice. Using published values of grain-size and temperature profile and the temperature variation of the index of refraction for ice. Using published values of grain-size and temperature-profile data of polar firn, the brightness temperature has been calculated for the 1.55 cm and 0.8 cm wavelengths. For selected regions in Greenland and Antarctica, the results of our calculations are in reasonable agreement with the observed Nimbus-5 and Nimbus-6 EMSR data. (Auth.)

34-3801

Pendular-funicular liquid transition in snow.

Denoth, A., *Journal of glaciology*, 1980, 25(91), p.93-97, 7 refs., In English with French and German summaries.

Snow permeability, Dielectric properties, Liquid solid interfaces, Porosity, Snow water content, Drainage, Water flow.

34-3802

Pressure waves in snow.

Brown, R.L., *Journal of glaciology*, 1980, 25(91), MP 1306, p.99-107, 9 refs., In English with French and German summaries.

Shock waves, Snow density, Loads (forces), Snow strength, Shear stress, Snow compression, Analysis (mathematics).

A dynamic constitutive law is used to study the response of medium-density snow to shock waves. The results show good correlation between theory and experiment, except for low-intensity shocks which produce small permanent density changes. In this case the validity of the data is questioned, although further experimental work is needed to settle this question. The results of this work also partially explain why snow is so effective in absorbing energy associated with stress waves. This is felt to be due to the work-hardening characteristics of snow.

34-3803

Nivation: an arctic-alpine comparison and reappraisal.

Thorn, C.E., et al, *Journal of glaciology*, 1980, 25(91), p.109-124, 40 refs., In English with French and German summaries.

Hall, K.

Nivation, Snow cover distribution, Geomorphology, Freeze thaw cycles, Weathering, Solifluction, Polar regions, Alpine glaciation.

34-3804

Scanning electron microscope examination of subglacial quartz grains from Camp Century core, Greenland—a preliminary study.

Whalley, W.B., et al, *Journal of glaciology*, 1980, 25(91), p.125-131, 13 refs., In English with French and German summaries.

Langway, C.C., Jr.

Subglacial observations, Glacier beds, Scanning electron microscopy, Glacial deposits, Eolian soils, Sands, Geomorphology.

34-3805

Dynamic behaviour of dislocations in HF-doped ice Ih.

Perez, J., et al, *Journal of glaciology*, 1980, 25(91), p.133-149, 16 refs., In English with French and German summaries.

Maï, C., Taibouët, J., Vassoille, R.

Doped ice, Ice mechanics, Ice crystal structure, Internal friction, Temperature effects, Velocity, Mathematical models.

34-3806

Does the permanent creep-rate of polycrystalline ice increase with crystal size.

Duval, P., et al, *Journal of glaciology*, 1980, 25(91), p.151-157, 15 refs., In English with French and German summaries.

Le Gac, H.

Ice creep, Ice crystal size, Grain size, Rheology, Ice mechanics, Temperature effects, Stresses, Strains, Compressive properties.

34-3807

Elastic constants of ice by Brillouin spectroscopy.

Gammon, P.H., et al, *Journal of glaciology*, 1980, 25(91), p.159-167, 28 refs., In English with French and German summaries.

Kieffe, H., Clouter, M.J.

Ice elasticity, Ice spectroscopy, Ice crystal structure, Rheology.

34-3808

Fast light-weight core drill.

Johnsen, S.J., et al, *Journal of glaciology*, 1980, 25(91), p.169-174, 4 refs., In English with French and German summaries.

Ice coring drills, Equipment.

34-3809

Field techniques for experimental stress analysis in Arctic sea ice.

Cochran, G.V.B., *Journal of glaciology*, 1980, 25(91), p.175-182, 18 refs., In English with French and German summaries.

Sea ice, Glacier ice, Stresses, Shear strain, Electrical resistivity, Compressive properties, Temperature effects.

34-3810

Existence of multiple steady states in the flow of large ice masses.

Fowler, A.C., *Journal of glaciology*, 1980, 25(91), p.183-184, 3 refs., In English with French and German summaries.

Ice mechanics, Ice sheets, Glacier flow, Ice thermal properties.

34-3811

Bottom crevasses.

Weertman, J., *Journal of glaciology*, 1980, 25(91), p.185-188, 10 refs., In English with French and German summaries.

Ice shelves, Iceberg towing, Crevasses, Freezing, Floating ice, Ice temperature, Theories.

An approximate calculation is made of the rate which a bottom crevasse in a cold ice shelf or tabular iceberg can close shut by freezing of water and can creep open through the creep deformation of ice. In all but the thickest ice shelves and icebergs, those with a thickness greater than about 400 m, the freezing process is the more important mechanism if the ice is cold ( $<10^{\circ}\text{C}$ ). Consequently, in a cold iceberg or ice shelf, a bottom crevasse, once formed, will freeze shut. Results of the calculation are applicable to the computation of the expected disintegration of towed icebergs. (Auth. mod.)

34-3812

Regimes of landscape-geochemical processes in geosystems. [Rezhimy landshaftno-geokhimicheskikh protsessov v geosistemakh].

Snytko, V.A., ed, Irkutsk, 1977, 120p., In Russian. For selected papers see 34-3813 through 34-3816. Refs. passim.

Kochurov, B.I., ed, Nechaeva, E.G., ed.

DLC GB405.R48

Taiga, Soil composition, Soil formation, Swamps, Soil chemistry, Cryogenic soils, Soil water, Snow cover effect, Topographic factors.

34-3813

Metabolism of organic matter in south taiga soils of East Siberia. [Metabolizm organicheskogo veshchestva v pochvakh iuzhnoi taigi Zapadnoi Sibiri].

Nechaeva, E.G., et al, Rezhimy landshaftno-geokhimicheskikh protsessov v geosistemakh (Regimes of landscape-geochemical processes in geosystems) edited by V.A. Snytko, B.I. Kochurov and E.G. Nechaeva, Irkutsk, 1977, p.9-24, In Russian. 28 refs.

Davydova, N.D.

DLC GB405.R48

Taiga, Soil composition, Soil profiles, Soil formation.

34-3814

Dynamics of soil-geochemical indices in taiga permafrost geosystems. [Dinamika pochvenno-geokhimicheskikh pokazatelei v merzlotno-taezhnykh geosistemakh].

Shchetnikov, A.I., Rezhimy landshaftno-geokhimicheskikh protsessov v geosistemakh (Regimes of landscape-geochemical processes in geosystems) edited by V.A. Snytko, B.I. Kochurov and E.G. Nechaeva, Irkutsk, 1977, p.43-58, In Russian. 12 refs.

DLC GB405.R48

Taiga, Landscape types, Mountains, Cryogenic soils, Soil composition, Soil chemistry.

34-3815

Geochemical structure of West Sayan foothill geosystems. [Geokhimicheskaya struktura predgornnykh geosistem Zapadnogo Saiana].

Kochurov, B.I., et al, Rezhimy landshaftno-geokhimicheskikh protsessov v geosistemakh (Regimes of landscape-geochemical processes in geosystems) edited by V.A. Snytko, B.I. Kochurov and E.G. Nechaeva, Irkutsk, 1977, p.59-72, In Russian. 10 refs.

Grechushkina, L.I.

DLC GB405.R48

Mountain soils, Snow cover distribution, Snow depth, Snow water equivalent, Soil water, Vegetation, Chemical composition.

34-3816

Dynamics of soil and geochemical indices in central taiga geosystems. [Dinamika pochvenno-geokhimicheskikh pokazatelei srednetaezhnykh geosistem].

Sazonov, A.G., Rezhimy landshaftno-geokhimicheskikh protsessov v geosistemakh (Regimes of landscape-geochemical processes in geosystems) edited by V.A. Snytko, B.I. Kochurov and E.G. Nechaeva, Irkutsk, 1977, p.73-84, In Russian. 4 refs.

DLC GB405.R48

Taiga, Landscape types, Paludification, Soil formation, Cryogenic soils, Sporadic permafrost, Soil water, Soil chemistry, Topographic effects.

34-3817

Residential complexes for oil and gas field workers in West Siberia. [Vakhtennyye zhilye kompleksy dlia stroitelei nefnykh i gazovykh mestorozhdenii Zapadnoi Sibiri].

Kravets, V.A., *Stroitel'stvo i arkhitektura*, 1979, Vol. 15, p.52-58, In Russian.

Petroleum industry, Residential buildings, Permafrost beneath structures, Design.

34-3818

Improving work organization and quality control at a most important construction site. [Sovershenstvovanie organizatsii rabot i kontrolya kachestva na vazhнейшей stroitke].

Pelevin, I.V., *Stroitel'stvo truboprovodov*, May 1980, No.5, p.20-21, In Russian.

Gas pipelines, Permafrost hydrology, Permafrost beneath structures, Underground pipelines, Swamps, Pipe laying, Welding, Earthwork, Quicksand.

34-3819

Development of a specialized production base in West Siberia. [Zadachi razvitiia otraslevoi proizvodstvennoi bazy v Zapadnoi Sibiri].

Gorlashkina, G.A., et al, *Stroitel'stvo truboprovodov*, May 1980, No.5, p.21-22, In Russian.

Stoianov, A.I.

Petroleum industry, Construction materials, Construction equipment, Storage, Logistics, Permafrost beneath structures.

34-3820

Pipeline for container transport of viscous oils and petroleum products. [Truboprovodnyi kontainernyi transport viazhkikh neftei i nefteproduktov].

Ibragimov, D.B., et al, *Stroitel'stvo truboprovodov*, May 1980, No.5, p.26-29, In Russian.

Petroleum transportation, Hot oil lines, Permafrost beneath structures, Pipelines, Container transportation.

34-3821

Eliminating breakdowns during the testing of the Surgut-Polotsk oil pipeline. [Likvidatsiya otkazov pri ispytanii uchastka nefteprovoda Surgut-Polotsk].

Riabov, G.N., *Stroitel'stvo truboprovodov*, May 1980, No.5, p.32-33, In Russian.

Petroleum transportation, Pipelines, Swamps, Permafrost beneath structures, Maintenance.

34-3822

Modernized welding assembly PAU1001V for field work. [Modernizirovannaya polevaia avtomaticheskaya ustanovka PAU1001V].

Borutskii, A.I., et al, *Stroitel'stvo truboprovodov*, May 1980, No.5, p.36-37, In Russian.

Gol'dfain, A.E., Krikun, A.I.

Petroleum transportation, Pipelines, Welding, Cold weather construction.

34-3823

Improving the design of structures built in complex ground conditions. [Sovershenstvovanie rascheta sooruzhenii vozvodimykh v slozhnykh gruntovykh usloviyakh].

Meteliuk, N.S., Kiev, Budivelnik, 1980, 143p., In Russian with English table of contents enclosed. 30 refs.

Concrete structures, Foundations, Residential buildings, Industrial buildings, Reinforced concretes, Clay soils, Rheology, Bearing strength, Creep, Deformation, Karst.

34-3824

Dehydration of nonmetalliferous construction materials at low temperatures. [Obezvozhivanie nerudnykh stroitel'nykh materialov pri nizkikh temperaturakh].

Gurevich, V.G., et al, Leningrad, Stroizdat, 1980, 70p., In Russian with English table of contents enclosed. 14 refs.

Atlasov, V.G., Abramson, V.Sh.

Construction materials, Sands, Gravel, Frozen cargo, Storage, Drying, Vacuum freezing, Equipment.

- 34-3825**  
**Passenger transportation in Urban planning of the North.** [Passazhirskii transport v gradostroitel'stve Severa]. Belinskii, A.I.U., et al. Leningrad, Stroiizdat, 1980, 146p., In Russian with English table of contents enclosed. 34 refs.  
Furen, V.M.  
**Urban planning, Transportation, Economic analysis, Models.**
- 34-3826**  
**Technology and equipment for building pile foundations on permafrost.** [Tekhnologiya i mekhanizatsiya rabot po stroitel'stvu svaynykh fundamentov na vechnomerzlykh gruntakh]. Rastegaev, I.K., Leningrad, Stroiizdat, 1980, 128p., In Russian with English table of contents enclosed. 26 refs.  
**Foundations, Permafrost beneath structures, Concrete piles, Pile driving, Pile extraction, Pile load tests.**
- 34-3827**  
**English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 1.**  
International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978, Ottawa, Canada, National Research Council, Mar. 1980, 399p., Refs. passim. For individual papers see 34-3828 through 34-3853. For Part 2 see 34-3232 through 34-3259.  
**Geocryology, Permafrost physics, Permafrost origin, Permafrost hydrology, Frost penetration, Subsea permafrost, Ground ice, Permafrost structure, Permafrost distribution.**
- 34-3828**  
**Reconstruction of paleoclimate from present day geothermal data.**  
Balobaev, V.T., International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978, English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 1, Ottawa, Canada, National Research Council, Mar. 1980, p.1-12, 4 refs. For Russian original see 32-3664.  
**Paleoclimatology, Permafrost thickness, Active layer, Permafrost thermal properties.**
- 34-3829**  
**Classification of the relationship between climate and permafrost-climatic regions.**  
Gavrilova, M.K., International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978, English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 1, Ottawa, Canada, National Research Council, Mar. 1980, p.13-27, For Russian original see 32-3666.  
**Climatology, Permafrost origin, Geocryology, Microclimatology, Classifications.**
- 34-3830**  
**Effect of developing a territory on the heat balance and the thermal and moisture regime of the ground in the northern part of Western Siberia.**  
Moskalenko, N.G., et al. International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978, English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 1, Ottawa, Canada, National Research Council, Mar. 1980, p.29-44, 8 refs. For Russian original see 32-3671.  
Slavin-Borovskii, V.B., Shur, I.U.L., Lazareva, N.A., Malevskii-Malevich, S.P.  
**Permafrost thermal properties, Active layer, Surface temperature, Heat balance, Taiga, Forest tundra, Human factors.**
- 34-3831**  
**Thermal physics of permafrost terrain.**  
Pavlov, A.V., International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978, English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 1, Ottawa, Canada, National Research Council, Mar. 1980, p.46-61, 12 refs. For Russian original see 32-3673.  
**Cryogenic soils, Soil temperature, Vegetation factors, Heat transfer, Permafrost thermal properties.**
- 34-3832**  
**Geophysical aspects of the development of permafrost.**  
Kudryavtsev, V.A., et al. International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978, English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 1, Ottawa, Canada, National Research Council, Mar. 1980, p.63-79, 29 refs. For Russian original see 32-3677.  
Melamed, V.G.  
**Permafrost origin, Frost penetration, Heat transfer, Mass transfer, Active layer, Surface temperature, Radiation balance, Permafrost heat balance, Stefan problem.**
- 34-3833**  
**An NMR study of the phase transition of water in models and in frozen clays.**  
Kvildizze, V.I., et al. International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978, English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 1, Ottawa, Canada, National Research Council, Mar. 1980, p.81-96, 36 refs. For Russian original see 32-3679.  
Kiselev, V.F., Krasnushkin, A.V., Kurzaev, A.B., Ushakova, L.A.  
**Frozen fines, Clays, Mass transfer, Phase transformations, Ground ice, Nuclear magnetic resonance.**
- 34-3834**  
**Investigation of the structure and properties of bound water.**  
Savel'ev, B.A., International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978, English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 1, Ottawa, Canada, National Research Council, Mar. 1980, p.97-107, 11 refs. For Russian original see 32-3682.  
**Frozen ground, Ground ice, Hygroscopic water, Soil strength, Deformation.**
- 34-3835**  
**Conditions and geothermal consequences of the moisture exchange between the lithosphere and the atmosphere in permafrost regions.**  
Shvetsov, P.F., International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978, English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 1, Ottawa, Canada, National Research Council, Mar. 1980, p.109-117, 17 refs. For Russian original see 32-3684.  
**Permafrost hydrology, Air temperature, Surface temperature, Heat transfer, Mass transfer, Frozen fines.**
- 34-3836**  
**Results of experimental studies of the freezing process in very fine-grained soils.**  
Zhestikova, T.N., International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978, English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 1, Ottawa, Canada, National Research Council, Mar. 1980, p.119-136, 10 refs. For Russian original see 32-3686.  
**Frozen fines, Frost penetration, Soil water migration, Ground ice, Cryogenic structures, Ice structure.**
- 34-3837**  
**Role of highly mineralized groundwater in the cooling of the lithosphere at depth.**  
Chizhov, A.B., International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978, English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 1, Ottawa, Canada, National Research Council, Mar. 1980, p.137-142, 9 refs. For Russian original see 32-3687.  
**Permafrost hydrology, Ground water, Frozen rock temperature.**
- 34-3838**  
**Experimental investigation of heat and moisture transfer during sublimation-desublimation of water in fine-grained soils.**  
Ershov, E.D., et al. International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978, English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 1, Ottawa, Canada, National Research Council, Mar. 1980, p.143-158, 8 refs. For Russian original see 32-3688.  
Gurov, V.V., Komarov, I.A., Kuchukov, E.Z.  
**Frozen fines, Ground ice, Ice sublimation, Heat transfer, Mass transfer.**
- 34-3839**  
**Water migration, formation of texture and ice segregation in freezing and thawing clayey soils.**  
Ershov, E.D., et al. International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978, English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 1, Ottawa, Canada, National Research Council, Mar. 1980, p.159-175, 11 refs. For Russian original see 32-3689.  
Cheverev, V.G., Lebedenko, I.U.P., Shevchenko, L.V.  
**Clay soils, Frost penetration, Frozen fines, Soil water migration, Ground ice, Freeze thaw cycles, Ice growth, Scanning electron microscopy.**
- 34-3840**  
**Effect of long-term cryometamorphism of earth materials on the formation of groundwater.**  
Fotiev, S.M., International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978, English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 1, Ottawa, Canada, National Research Council, Mar. 1980, p.177-194, 8 refs. For Russian original see 32-3690.  
**Permafrost hydrology, Permafrost structure, Mapping, Charts.**
- 34-3841**  
**Long term dynamics of groundwater icings.**  
Romanovskii, N.N., et al. International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978, English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 1, Ottawa, Canada, National Research Council, Mar. 1980, p.195-207, 7 refs. For Russian original see 32-3695.  
Afanasenko, V.E., Koreisha, M.M.  
**Naleds, Permafrost hydrology, Taliks, Subpermafrost ground water, Climatic factors.**
- 34-3842**  
**Role of tectonics in the formation of permafrost on low plains.**  
Baulin, V.V., et al. International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978, English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 1, Ottawa, Canada, National Research Council, Mar. 1980, p.209-223, 22 refs. For Russian original see 32-3699.  
**Permafrost structure, Ground ice, Ice veins, Pingos, Thermokarst, Tectonics, Permafrost origin.**
- 34-3843**  
**Cryolithogenesis as an independent hydrothermal type of sedimentary process.**  
Gasarov, Sh.Sh., International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978, English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 1, Ottawa, Canada, National Research Council, Mar. 1980, p.225-244, 16 refs. For Russian original see 32-3703.  
**Geocryology, Permafrost origin, Theories.**
- 34-3844**  
**Cyclic nature of thermokarst on the Maritime Plain in the Upper Pleistocene and Holocene.**  
Gravis, G.F., International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978, English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 1, Ottawa, Canada, National Research Council, Mar. 1980, p.245-257, 8 refs. For Russian original see 32-3705.  
**Thermokarst, Alassy, Lacustrine deposits, Radioactive age determination, Alluvium, Marine deposits, Pollen.**
- 34-3845**  
**Some aspects of the mechanics of frost fracturing of soils in the permafrost zone.**  
Grechishchev, S.E., International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978, English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 1, Ottawa, Canada, National Research Council, Mar. 1980, p.259-278, 11 refs. For Russian original see 32-3706.  
**Permafrost thermal properties, Rheology, Frozen ground temperature, Frost shattering, Cryogenic soils.**

## 34-3846

**Mineral stability in the zone of cryolithogenesis.** Konishchev, V.N., International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 1. Ottawa, Canada, National Research Council, Mar. 1980, p.279-295, 20 refs. For Russian original see 32-3709.

**Frost weathering, Frost shattering, Freeze thaw cycles, Interstitial ice.**

## 34-3847

**Principles of classification of polygonal-vein structures.**

Romanovskii, N.N., International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 1. Ottawa, Canada, National Research Council, Mar. 1980, p.297-310, 14 refs. For Russian original see 32-3711.

**Ground ice, Ice veins, Classifications.**

## 34-3848

**Offshore permafrost in the Asiatic Arctic.**

Are, F.E., International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 1. Ottawa, Canada, National Research Council, Mar. 1980, p.311-326, 29 refs. For Russian original see 32-3713.

**Subsea permafrost, Permafrost distribution, Permafrost thickness, Arctic Ocean.**

## 34-3849

**Structure of the northern circumpolar permafrost region.**

Baranov, I.I.A., International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 1. Ottawa, Canada, National Research Council, Mar. 1980, p.327-345, 4 refs. For Russian original see 32-3714.

**Permafrost structure, Terminology, Classifications, Cryosphere, Regionalization.**

## 34-3850

**More precise position of the southern permafrost boundary between the Urals and the Ob' River.**

Dubikov, G.I., International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 1. Ottawa, Canada, National Research Council, Mar. 1980, p.347-356, 9 refs. For Russian original see 32-3716.

**Permafrost distribution, Boundaries, Permafrost structure, Permafrost thermal properties, USSR—Ural Mountains, USSR—Ob' River.**

## 34-3851

**Permafrost in the mountains of Central Asia.**

Gorbunov, A.P., International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 1. Ottawa, Canada, National Research Council, Mar. 1980, p.357-369, 1 ref. For Russian original see 32-3719.

**Permafrost distribution, Permafrost structure, Continuous permafrost, Discontinuous permafrost, Frozen rock temperature, Ground ice, Ice structure, USSR—Tien Shan, USSR—Pamirs, USSR—Altai Mountains.**

## 34-3852

**Zonal and regional patterns of formation of the permafrost region in the U.S.S.R.**

Kudriavtsev, V.A., et al., International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 1. Ottawa, Canada, National Research Council, Mar. 1980, p.371-389, 21 refs. For Russian original see 32-3726.

**Kondrat'eva, K.A., Romanovskii, N.N. Permafrost distribution, Subsea permafrost, Ground ice, Permafrost structure, Maps, Mapping, USSR.**

## 34-3853

**Cryolithological map of the U.S.S.R. (Principles and compilation).**

Popov, A.I., et al., International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. English translations of the forty-nine Soviet papers, the one French paper, and the three invited Soviet theme papers, Part 1. Ottawa, Canada, National Research Council, Mar. 1980, p.391-399, For Russian original see 32-3728.

**Rozenbaum, G.E., Vostokova, A.V.**

**Geocryology, Mapping, Maps, Permafrost structure, Permafrost distribution, Permafrost thickness, Lithology.**

## 34-3854

**Water revisited.**

Stillinger, F.H., *Science*, July 25, 1980, 209(4455), p.451-457, Numerous refs.

**Water, Ice crystal structure, High pressure ice, Hydrogen bonds, Supercooling.**

## 34-3855

**Antarctica is a rugged continent.** [Die Antarktis ist ein zerklüfteter Kontinent]. Grushinskii, N.P., et al., *Umschau*, Jan. 10, 1975, 75(1-2), p.638-640, In German with English summary. 1 ref.

**Stroev, P.A.**

**Geologic structures, Gravimetric prospecting, Subglacial observations, Antarctica.**

This article gives in brief the characteristics of the gravity survey in Antarctica, of the main features of the sub-ice relief and structure of the earth crust according to gravity determinations. Also mentioned are the geoid and the vertical deflections in Antarctica. (Auth.)

## 34-3856

**Building reinforced concrete road pavement on weak grounds.** [Prokladka zhelezobetonnykh dorog na slabyykh gruntakh].

Kolchanov, A.D., et al., *Lesnaia promyshlennost'*, 1979, No.12, p.22-24, In Russian.

**IA's'kov, I.F., Chelyshkin, N.D.**

**Frozen fines, Permafrost beneath roads, Pavements, Reinforced concretes, Earthwork, Roads, Taiga, Roadbeds, Embankments.**

## 34-3857

**Bundling of timber sections on ice.** [Formirovanie sektsii zimnei splotki na l'du].

Gushkalov, P.A., *Lesnaia promyshlennost'*, 1980, No.1, p.12-14, In Russian. 2 refs.

**Forestry, Transportation, Storage, Lakes, Fast ice, Ice accretion, Timber.**

## 34-3858

**Transport network of the Tyumen' forests.** [Transportnoe osvoenie lesov Tiimenskoi oblasti]. Dorofeev, A.G., *Lesnaia promyshlennost'*, 1980, No.2, p.7-9, In Russian.

**Transportation, Roads, Ice roads, Snow roads, Taiga.**

## 34-3859

**Consequences of using new machines in the north taiga pine forests.** [Posledstviia ispol'zovaniia novykh mashin v severo-taizhnykh sosniakakh].

Obyednikov, V.I., *Lesnoe khoziaistvo*, 1979, No.11, p.18-21, In Russian. 6 refs.

**Taiga, Forestry, Equipment, Cryogenic soils, Revegetation, Human factors.**

## 34-3860

**Effectiveness and quality of taiga reforestation.** [Efektivnost' i kachestvo lesovosstanovleniia v taizhnoi zone].

L'vov, P.N., *Lesnoe khoziaistvo*, 1979, No.12, p.29-30, In Russian. 3 refs.

**Taiga, Cryogenic soils, Forestry, Revegetation.**

## 34-3861

**Lichen pine forests of the European North.** [Sosniaki lichatnikovye evropeiskogo Severa].

Listov, A.A., *Lesnoe khoziaistvo*, 1980, No.1, p.22-25, In Russian. 11 refs.

**Taiga, Lichens, Plant ecology, Cryogenic soils.**

## 34-3862

**Opposition in ice redistribution in Arctic waters outside the USSR.** [Oppozitsiia v pereraspredelenii l'da v vodakh zarubezhnoi Arktiki].

Smirnov, V.I., *Meteorologiya i gidrologiya*, Mar. 1980, No.3, p.73-77, In Russian with English summary. 8 refs.

**Ice conditions, Drift, Flow rate, Ice cover thickness, Ocean currents.**

## 34-3863

**Change from pine to spruce in the northern European USSR.** [Nekotorye aspekty smeny sosny el'iu na Evropeiskom Severe SSSR].

Melekhov, I.S., et al., *Lesovedenie*, 1980, No.3, p.42-51, In Russian with English summary. Refs. p.49-51.

**Listov, A.A. Taiga, Plant ecology, Revegetation, Forestry, Cryogenic soils, Bibliographies.**

## 34-3864

**Geographic peculiarities of metabolism and energy exchange in pine forests of Karelia and Murmansk region.** [Geograficheskie osobennosti obmena veshchestv i energii v sosniakakh Kareli i Murmanskoi oblasti].

Ziabchenko, S.S., et al., *Lesovedenie*, 1980, No.3, p.52-60, In Russian with English summary. 19 refs.

**Ivanchikov, A.A. Taiga, Cryogenic soils, Plant ecology, Ecosystems, Nutrient cycle, Biomass.**

## 34-3865

**Heat transfer of a pipeline placed in an embankment.** [Teplotperedacha truboprovoda prolozhennogo v nasyp].

Furman, A.V., et al., *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedenii. Energetika*, Apr. 1979, No.4, p.116-119, In Russian. 5 refs.

**Diachuk, R.P. Petroleum transportation, Gas pipelines, Embankments, Heat transfer, Permafrost beneath structures, Design.**

**34-3866**

**Radioactive isotope techniques in controlling quality of work and investigations when building foundations and underground structures.** [Radioizotopnye metody kontrolya kachestva rabot i issledovaniia pri ustroistve fundamentov i podzemnykh sooruzhenii].

Smorodinov, M.I., Moscow, Atomizdat, 1980, 168p., In Russian. 86 refs.

**Foundations, Earthwork, Soil compaction, Soil water, Water content, Density (mass/volume), Measuring instruments, Gamma irradiation, Scattering, Underground facilities.**

## 34-3867

**Orbital sensing of Mackenzie Bay ice dynamics.**

Dey, B., *Arctic*, June 1980, 33(2), p.280-291, 21 refs., In English with French summary.

**Sea ice distribution, Remote sensing, Ice mechanics, Drift, Ice breakup, Freezeup, Maps, Fast ice, Ice navigation, Offshore drilling, Canada—Northwest Territories—Mackenzie Bay.**

## 34-3868

**Polynyas and prehistoric settlement patterns.**

Schledermann, P., *Arctic*, June 1980, 33(2), p.292-302, 18 refs., In English with French summary.

**Polynyas, Economic development, Ecology, Distribution.**

## 34-3869

**Biological importance of polynyas in the Canadian Arctic.**

Stirling, I., *Arctic*, June 1980, 33(2), p.303-315, 33 refs., In English with French summary.

**Polynyas, Environmental impact, Human factors, Ecology, Water pollution, Offshore structures, Ice breaking.**

## 34-3870

**Mineral precipitation in North Slope river icings.**

Hall, D.K., *Arctic*, June 1980, 33(2), p.343-348, 12 refs., In English with French summary.

**Naleds, Minerals, Sedimentation, River ice, River water, Ground water.**

## 34-3871

**Periglacial features from Morfee Mountain, North-Central British Columbia.**

Revel, R.D., *Arctic*, June 1980, 33(2), p.349-356, 24 refs., In English with French summary.

**Periglacial processes, Polygonal topography, Mountains, Terrain identification, Landforms, Permafrost distribution.**

## 34-3872

**Stratigraphy of a silt-cored palsa, Atlin region, British Columbia, Canada.**

Seppälä, M., *Arctic*, June 1980, 33(2), p.357-365, 18 refs., In English with French summary.

**Frost mounds, Pingos, Stratigraphy, Discontinuous permafrost, Ice lenses, Hummocks, Peat, Radioactive age determination, Geomorphology.**



34-3873

Construction of an embankment with frozen soil. Botz, J.J., et al. *U.S. Army Cold Regions Research and Engineering Laboratory*, May 1980, SR 80-21, 105p., ADA-086 877, 44 refs.

Haas, W.M.

Embankments, Frozen ground strength, Cold weather construction, Soil compaction, Settlement (structural), Frost penetration, Earthwork, Engineering, Excavation, Stability, Soil physics, Soil temperature, Tests.

This paper presents the construction procedure, data and analysis from an experimental field program to determine the ripability and compaction characteristics of frozen soil. Also investigated was the stability upon thawing of the frozen soil compacted in the field. From the results of the experimental program, several important conclusions concerning winter earthwork were obtained: 1) Ripping frozen soil can be accomplished with heavy equipment which will produce a large range of chunk sizes. 2) The effectiveness of field compaction of frozen material is highly dependent on the moisture content of the soils. 3) The magnitude of settlement in embankments constructed of frozen material is closely related to the compacted dry density of the placed soil.

34-3874

Radio-echo sounding in the Allan Hills, Antarctica, in support of the meteorite field program.

Kovacs, A., *U.S. Army Cold Regions Research and Engineering Laboratory*, May 1980, SR 80-23, 9p., ADA-086 858, 3 refs.

Radio echo soundings, Glacier thickness, Glacier surveys, Ice cover thickness, Pollution, Meteorites, Antarctica—Allan Hills.

Radio-echo sounding measurements made on Ross Island and in the Allan Hills, Antarctica, indicate that radio-echo sounding may offer the unique possibility of detecting a buried meteorite in glacial ice. The results also revealed internal layering within the snow on Ross Island and in the snow filling an ice depression west of Allan Nunatak. Radio-echo sounding also gave the depth to bedrock near the west side of Allan Nunatak. The greatest ice depth measured was 310 m.

34-3875

Aspects of radar signal interpretation in Arctic sea-shore areas. (Obshchemetodicheskie aspekty deshifirovaniia radiolokatsionnykh signalov (na primere poberezhii arkticheskikh morei)). Kotiukh, A.A., *Leningrad. Universitet. Vestnik*, Dec. 1979, 24(4), p.66-74, In Russian with English summary. 1 ref.

Shores, Ice navigation, Radar echoes, Arctic Ocean.

34-3876

Regularities governing microelement content in the soils of the southwestern taiga area (The Ordovician Plateau). (O nekotorykh zakonornostiakh v soderzhanii mikroelementov v pochvakh iugo-zapadnoi chasti iuzhnoi taigi (Ordovikskoe plato)). Dvornikova, L.L., *Leningrad. Universitet. Vestnik*, Dec. 1979, 24(4), p.74-82, In Russian with English summary. 10 refs.

Taiga, Soil chemistry, Microelement content, Podsol, Loams, Paludification, Soil profiles.

34-3877

Biogeophysical conditions of interactions between solid precipitation and conifer forest canopy. (Biogeofizicheskie uslovia vzaimodelstviia tverdykh osadkov s pologom khvoynogo lesa).

Kaliuzhnyi, I.L., et al. *Leningrad. Universitet. Vestnik*, Dec. 1979, 24(4), p.82-90, In Russian with English summary. 10 refs.

Pavlova, K.K., Popov, B.A.

River basins, Taiga, Forest canopy, Snow cover distribution, Snow water equivalent.

34-3878

Postglacial dynamics of the northern border of the petiolate oak area in the USSR and phytocenogenesis of oak forests in the North. (Poslednikovaia dinamika severnoi granitsy areala duba cherschatogo v SSSR i filotsenogenez dubrav Severa). Denisov, A.K., *Lesovedenie*, Jan.-Feb. 1980, No.1, p.3-11, In Russian with English summary. 34 refs.

Forest land, Vegetation, Migration, Cold tolerance, Plant ecology.

34-3879

Forests in the Vychevka river floodplain, their distribution and dynamics. (Les v poime r. Vychevdy, ikh razmeshchenie i dinamika).

Moiseev, B.N., et al. *Lesovedenie*, Jan.-Feb. 1980, No.1, p.12-20, In Russian with English summary. 10 refs.

Rubtsov, M.V.

Taiga, Paludification, Plant ecology, Ecosystems, Forestry.

34-3880

Biomass volume and structure in larch forests of the northern Okhotsk Sea region. (Zapasy i struktura rastitel'noi massy drevostoev v osnovnykh tipakh listvennichnikov Severnogo Okhotomoria). Moskaliuk, T.A., *Lesovedenie*, Mar.-Apr. 1980, No.2, p.32-39, In Russian with English summary. 18 refs.

Taiga, Cryogenic soils, Plant ecology, Ecosystems, Biomass.

34-3881

Organic substances of soddy-podsolic soils with a second humus zone in the Smolensk area. (Svoistva organicheskogo veshchestva durnovo-podzolistykh pochv so vtorym gumusovym gorizontom Smolenskoi oblasti). Tereshchenkova, I.A., et al. *Leningrad. Universitet. Vestnik*, Aug. 1979, 15(3), p.90-96, In Russian. 10 refs.

Tolchevnikov, I.U.S., Rastvorova, O.G.

Taiga, Soil composition, Podsol, Soil chemistry, Soil profiles.

34-3882

Calculating design thickness of layered ice. (Otsenka raschetnoi tolshchiny naplastovannogo l'da). Afanas'ev, V.P., *Meteorologiya i gidrologiya*, Oct. 1979, No.10, p.88-92, In Russian with English summary. 6 refs.

Sea ice, Hydraulic structures, Ice loads, Ice cover thickness, Design.

34-3883

Strength of ice cover during its breakup period on rivers of the Baykal Amur railroad area. (Nekotorye kharakteristiki prochnosti ledianogo pokrova v period vskrytiia na rekakh zony BAM). Zabelina, E.F., *Meteorologiya i gidrologiya*, Oct. 1979, No.10, p.93-101, In Russian with English summary. 11 refs.

Icebound rivers, Ice breakup, Ice cover thickness, Ice cover strength, Ice loads, Hydraulic structures, Baykal Amur railroad.

34-3884

Regularities of sea ice distribution in Arctic waters outside the USSR. (Zakonornosti v pereraspredelenii l'dov v vodakh zarubezhnoi Arktiki). Smirnov, V.I., *Meteorologiya i gidrologiya*, Nov. 1979, No.11, p.109-112, In Russian. 2 refs.

Ice conditions, Drift, Ice navigation, Ice reporting, Arctic Ocean.

34-3885

Water permeability of frozen non-cohesive soils and analyses of its variation during the snowmelt and thawing periods. (Vodopronitsaemost' merzlykh nesviaznykh gruntov i analiz dinamiki ee izmeneniia v period snegotaiania i ottaivaniia). Shtykov, V.I., *Meteorologiya i gidrologiya*, Dec. 1979, No.12, p.91-98, In Russian with English summary. 9 refs.

Soil freezing, Frost penetration, Soil water migration, Permeability, Phase transformations, Seasonal freeze thaw.

34-3886

Justification of earth-fill stages in embankment construction on permafrost. (K obosnovaniu stadiinosti otsypki nasypy na vechnomerzlykh gruntakh). Kurochkin, A.A., *Moscow. Institut inzhenerov zheleznodorozhnogo transporta. Trudy*, 1978, Vol.621, p.55-59, In Russian. 2 refs.

Railroads, Embankments, Earth dams, Permafrost bases, Bearing strength.

34-3887

Studying rheological properties of mortars containing new antifreeze admixtures. (Issledovanie reologicheskikh svoistv rastvornoi smesi s novoi protivomoroznoi dobavkoj).

Petrovskaya, T.A., *Moscow. Institut inzhenerov zheleznodorozhnogo transporta. Trudy*, 1978, Vol.621, p.98-104, In Russian. 2 refs.

Winter concreting, Cement admixtures, Concrete admixtures, Antifreezes, Reinforced concretes, Mortars.

34-3888

Studying relations between soil consolidation indices. (Issledovanie po sootnosheniiu mezhdu konsolidatsionnymi pokazateliami svoistv gruntov). Ksenofontov, A.I., *Moscow. Institut inzhenerov zheleznodorozhnogo transporta. Trudy*, 1978, Vol.613, p.26-33, In Russian. 3 refs.

Clay soils, Soil water migration, Soil compaction, Analysis (mathematics).

34-3889

Nonlinear formulation of a univariate problem of consolidation of saturated ground gases. (Odnomernaia zadacha konsolidatsii vodonasyschennykh gruntov osnovani v nelineinoi postanovke).

Votikov, I.F., *Moscow. Institut inzhenerov zheleznodorozhnogo transporta. Trudy*, 1978, Vol.613, p.34-44, In Russian. 5 refs.

Clay soils, Soil water, Moisture transfer, Soil compaction, Analysis (mathematics).

34-3890

Evaluating settlement and bearing strength of piles allowing for the time factor. (Otsenka osadki i nesushchei sposobnosti sval s uchedom faktora vremeni). Khamov, A.P., *Moscow. Institut inzhenerov zheleznodorozhnogo transporta. Trudy*, 1978, Vol.613, p.45-55, In Russian. 4 refs.

Foundations, Piles, Bearing strength, Settlement (structural), Time factor.

34-3891

Experimental testing of the compression technique of determining lower clay soil plasticity limits. (Eksperimental'naia proverka metodiki opredeleniia nizhnego predela plastichnosti glinistykh gruntov metodom obzhatia).

Rogatina, Zh.E., et al. *Moscow. Institut inzhenerov zheleznodorozhnogo transporta. Trudy*, 1978, Vol.613, p.65-72, In Russian. 2 refs.

Kozlova, N.F., Driukova, A.P.

Clay soils, Plasticity tests, Compressive properties.

34-3892

Finite element method of calculating ground freezing depth. (Raschet glubiny promerzaniia gruntov metodom konechnogo elementa).

Rudych, O.L., et al. *Moscow. Institut inzhenerov zheleznodorozhnogo transporta. Trudy*, 1978, Vol.613, p.81-85, In Russian. 3 refs.

Rudych, L.N.

Soil freezing, Frost penetration, Ice formation, Ground ice, Soil water migration, Phase transformations.

34-3893

Using artificial freezing in counteracting frost heave effect on supports of pile-trestle bridges. (Ispol'zovanie okhlazhdaushchikh ustanovok dlia lecheniia opor svalno-estakadnykh mostov ot sil moroznogo pucheniia).

Egorov, V.V., et al. *Moscow. Institut inzhenerov zheleznodorozhnogo transporta. Trudy*, 1978, Vol.613, p.86-92, In Russian. 2 refs.

Kravchenko, I.U.A., Fedenev, N.A.

Bridges, Piles, Frost heave, Foundations.

34-3894

Ice pressure ridges. Kraus, E., *U.S. Army Cold Regions Research and Engineering Laboratory*, Feb. 1980, TL 721, 59p., ADA-084 227, 38 refs. Translated from the Third Hydrological Conference of the Baltic States, Warsaw, May, 1930.

Sea ice, Pressure ridges, Tectonics.

In the first (descriptive) section, some of the greatest and most significant ice pressure ridges are discussed in order to derive from them the most important general conditions of formation. The second section brings up applications to general geological questions, particularly for tectonics. In the third section the ice pressure ridges are considered as a natural experiment with respect to the tectonic processes in the earth's crust.

34-3895

Distribution of sea ice meltwater in the eastern Canadian Arctic.

Tan, F.C., et al. *Journal of geophysical research*, Apr. 20, 1980, 85(C4), p.1925-1932, 10 refs.

Strain, P.M.

Sea ice, Meltwater, Ice melting, Distribution, Ground water, Ice cover thickness, Oxygen isotopes, Canada.

34-3896

Introduction to town planning and related matters in the Soviet North: based upon information collected during the exchange visit by a Canadian delegation to the Soviet Union—September 25th to October 7th, 1977.

Slipchenko, W., et al. *Ottawa, Department of Information*, 1978, 426p.

Elkin, L.

Urban planning, Economic development, Cold weather construction, Permafrost distribution, Research projects, Pipelines, Roads, Maps, Photography.

- 34-3897**  
**Building standards and regulations. Part 2: Design standards. Chapter 6: Loads and effects.** Russia. Gosudarstvennyi komitet po delam stroitel'stva. U.S. Army Cold Regions Research and Engineering Laboratory, Apr. 1980. TL 736, 92p., ADB-048 871L. Translation from SNiP-11-16-74.  
**Building codes, Standards, Structures, Cold weather construction, Ice loads, Snow loads, Wind pressure, Loads (forces), Bearing strength, Temperature effects, Design.**
- 34-3898**  
**Investigation of ice drift in the southeastern part of the Barents Sea with the aid of a "Toros" peripheral scanning radar station.** Zubakin, G.K., et al. U.S. Army Cold Regions Research and Engineering Laboratory, June 1980. TL 741, 7p., ADB-048 905L, 2 refs. For Russian original see 34-358.  
Zuev, A.N., Larin, B.V., Matorov, O.N.  
**Ice surveys, Ice reporting, Ice conditions, Side looking radar, Drift, Ice edge, Airborne radar, Ice navigation.**  
The "Toros" device makes possible the mapping of the ice sheet of extensive areas of the sea at any time of year, regardless of meteorological or lighting conditions. The enumerated data, provided by the "Toros" peripheral scanning radar station, indicate the multitudinous possibilities of applying this data in the solution of problems of various types. With the help of this system, an experiment was conducted in the southeastern part of the Barents Sea in Apr. 1974, which was directed towards the solution of the problem of short-term forecasting of the location of the ice in a given area.
- 34-3899**  
**Icebergs: technology for the future.** Huppert, H.E., *Nature*, May 8, 1980, 285(5760), p.67-68.  
**Meetings, Icebergs.**  
The author reports on the Conference on the Use of Icebergs held in April 1980 at SPR in Cambridge. The conference was devoted mainly to discussions on the physical characteristics of icebergs, including the way they break and roll over, their melt rate, and the feasibility of towing them across oceans for use in arid regions. Several of the papers dealing with these aspects are reviewed.
- 34-3900**  
**Cargo to the north by transport planes.** (Gruzy na Sever -vozdushnym transportom). Chudnovskii, A., *Neftianik*, 1978, No.5, p.8-10, In Russian.  
**Petroleum industry, Logistics, Transportation, Airplanes, Cost analysis.**
- 34-3901**  
**Transport planes in the economic development of northern USA and Canada.** (Transportnaia aviatsiia na osvoenii Severa SShA i Kanady). Chudnovskii, A., *Neftianik*, 1978, No.10, p.44-47, In Russian.  
**Economic development, Construction, Transportation, Airplanes.**
- 34-3902**  
**Chemical composition of snow and ice of the highest Pamir glaciers.** (O khimicheskom sostave snega i l'da vysochaishikh lednikov Pamira). Diurigerov, M.B., et al. Moscow. *Universitet. Vestnik. Seriya 5 Geografiia*, Mar.-Apr. 1980, No.2, p.67-71, In Russian with English summary. 7 refs.  
Evseev, A.V., Sukhova, T.G.  
**Glacier ice, Snow cover distribution, Ice composition, Snow composition, Admixtures, USSR—Pamirs.**
- 34-3903**  
**Rock glaciers in Dagestan mountains (East Caucasus).** (Kamennye gletchery gornogo Dagestana (Vostochnyi Kavkaz)). Kozhevnikov, A.V., et al. Moscow. *Universitet. Vestnik. Seriya 4 Geologii*, Mar.-Apr. 1980, No.2, p.14-26, In Russian. 17 refs.  
Nikitin, M.IU., Lian, R.N.  
**Slope processes, Rock glaciers, Ice sheets, Ice composition, Dating, Classifications, USSR—Caucasus.**
- 34-3904**  
**Computer application to geocryological-engineering-geological mapping.** (K metodike primeneniia EVM pri merzlotno-inzhenerno-geologicheskom kartirovani). Kozlov, A.N., et al. Moscow. *Universitet. Vestnik. Seriya 4 Geologii*, Mar.-Apr. 1980, No.2, p.61-65, In Russian. 6 refs.  
Medvedev, A.V., Melent'ev, V.S., Chizhov, A.B.  
**Maps, Geocryology, Engineering geology, Mapping, Computer applications.**
- 34-3905**  
**Determining passability of walking excavators in inhomogeneous grounds, allowing for frozen layers.** (Metod opredeleniia prokhodimosti shagaiushchego ekskavatora po neodnorodnomu massivu s ucheto merzlogo sloia). Zagoruiko, L.P., Moscow. *Institut gornogo dela Nauchnye soobshcheniia*, 1978, Vol.164, p.118-124, In Russian. 2 refs.  
**Earthwork, Frozen fines, Clay soils, Thixotropy.**
- 34-3906**  
**Grouping coal deposits in permafrost areas according to geologic and mining development conditions.** (Gruppirovaniie ugol'nykh mestorozhdenii raionov mnogoletnei merzloty po gorno-geologicheskim usloviyam ikh razrabotki). Gazizov, M.S., et al. Moscow. *Institut gornogo dela Nauchnye soobshcheniia*, 1979, Vol.173, p.45-50, In Russian.  
Kostenko, V.I.  
**Mining, Coal, Permafrost structure, Permafrost depth, Geologic structures, Mine shafts, Wells, Supports.**
- 34-3907**  
**Lithologic and petrographic peculiarities of rocks in the subpermafrost transition zone of the Sangarskiy coal deposit.** (Litologo-petrograficheskie osobennosti porod v podmerzlotnoi perekhodnoi zone Sangarskogo mestorozhdeniia). Den'gina, N.I., et al. Moscow. *Institut gornogo dela Nauchnye soobshcheniia*, 1979, Vol.173, p.50-54, In Russian.  
Men'shov, V.V.  
**Mining, Coal, Permafrost distribution, Permafrost thickness, Permafrost structure, Lithology, Frozen fines.**
- 34-3908**  
**Increasing the stability of mining excavations in permafrost.** (O povyshenii ustoiichivosti vyrabotok v usloviakh mnogoletnei merzloty). El'chaninov, E.A., Moscow. *Institut gornogo dela Nauchnye soobshcheniia*, 1979, Vol.173, p.54-62, In Russian. 8 refs.  
**Mining, Permafrost structure, Ground ice, Mine shafts, Thermal regime, Permafrost control.**
- 34-3909**  
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- 34-3910**  
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- 34-3911**  
**Architectural design of railroad depots in the Northern Structural Climatic zone.** (Voprosy arkhitekturnogo proektirovaniia zdanii zheleznodorozhnykh depov v Severnoi stroitel'no-klimaticheskoi zone). Ermolaeva, E.I., Moscow. *Institut inzhenerov zheleznodorozhnogo transporta. Trudy*, 1978, Vol.600, p.19-23, In Russian. 2 refs.  
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**Inflatable structures, Thermal properties, Permafrost beneath structures, Construction materials.**
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**Determining additional heat losses of buildings through light apertures in the Baykal Amur railroad area.** (Opredeleniie dopolnitel'nykh teplopoter' cherez svetoproemy zdanii na BAME). Cheremysov, K.M., et al. Moscow. *Institut inzhenerov zheleznodorozhnogo transporta. Trudy*, 1978, Vol.600, p.105-110, In Russian. 3 refs.  
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**Buildings, Windows, Heat loss, Baykal Amur railroad.**
- 34-3914**  
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**Buildings, Windows, Heat transfer, Heat loss, Wind factors, Air temperature, Design.**
- 34-3915**  
**Thermotechnical qualities of external enclosures of Series-122 residential buildings.** (Teploekhnicheskie kachestva naruzhnykh ogradzhatel'nykh konstruktii zhilykh domov serii 122). Efimova, M.N., Moscow. *Institut inzhenerov zheleznodorozhnogo transporta. Trudy*, 1978, Vol.600, p.122-127, In Russian.  
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- 34-3916**  
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- 34-3917**  
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**Roofs, Snow cover distribution, Snow temperature, Buildings.**
- 34-3918**  
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**Roofs, Windows, Buildings, Construction materials, Heat transfer.**
- 34-3919**  
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- 34-3920**  
**Possibility of using sodium nitrite antifreeze in reinforced concretes of buildings and structures on railroads.** (Vozmozhnost' primeneniia betonov s protivomoroznoi dobavkoi nitrata natriia v zhelezobetonnykh konstruktiiakh zdanii i sooruzhenii na zheleznykh dorogakh). Kostiaev, P.S., et al. Moscow. *Institut inzhenerov zheleznodorozhnogo transporta. Trudy*, 1978, Vol.600, p.179-184, In Russian.  
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**Concrete structures, Reinforced concretes, Concrete admixtures, Antifreezes, Railroads.**

- 34-3921**  
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- 34-3922**  
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- 34-3923**  
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- 34-3924**  
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The West Antarctic ice sheet is believed to be inherently unstable because much of it is grounded below sea level. It has been suggested that the ice sheet has withdrawn from its late Wisconsin maximum position, grounded at the edge of the continental shelf, and is now undergoing collapse as a delayed response to the warming and sea-level rise of the Holocene, and that the ice sheet is likely to collapse shortly in response to rising CO<sub>2</sub> levels in the atmosphere. The authors present some geomorphological evidence from Alexander Island and the Antarctic Peninsula which does not agree with either hypothesis. Rather, following deglaciation from the Wisconsin maximum, there was less ice than at present around 8,000 yr ago. The ice shelf in George VI Sound has built up subsequently. (Auth.)
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- 34-3930**  
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Excavation, Equipment, Models.
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Transportation, Cargo, Unloading, Equipment, Baykal Amur railroad, Cold weather performance.
- 34-3945**  
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- 34-3947**  
Preliminary feasibility study of a tanker transportation system serving the northwest coast of Alaska. Final report. Halebsky, M., et al, Newport Beach, Calif., Global Marine Development Inc., Feb. 1980, 3 vols., PB80-153 638, PB80-153 646, PB80-153 653, 52 refs.  
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Marine transportation, Tanker ships, Petroleum transportation, Icebreakers, Crude oil, United States—Alaska.
- 34-3948**  
Application of recent results in functional analysis to the problem of wetting fronts. Nakano, Y., *Water resources research*, Apr. 1980, 16(2), MP 1307, p.314-318, 16 refs.  
Soil water migration, Soil physics, Boundary value problems, Seepage, Porous materials, Wettability.

Traditionally, in hydrology and soil physics, wetting fronts appearing in porous media described by Darcy's law have not generally been considered to be singular surfaces. Some recent results from functional analysis are presented as evidence supporting the viewpoint that wetting fronts with a finite propagating speed generally are singular surfaces.

## 34-3949

**Water movement in a land treatment system of wastewater by overland flow.**

Nakano, Y., et al. *Progress in water technology*, 1979, 11(4-5), MP 1285, p.185-206, 15 refs.

Khalid, R.A., Patrick, W.H., Jr.

**Water flow, Waste treatment, Water treatment, Soil water, Saturation, Seepage, Slope orientation, Experiments.**

Water movement in an overland-flow land treatment system was studied experimentally and theoretically. A small-scale physical model was used to obtain experimental data. The theoretical analysis was based upon the shallow water equation for overland flow and the Darcy-Richards law for soil water flow. It was found that the water movement in the system was primarily controlled by the application rate, the friction slope, the slope angle, the hydraulic characteristics of soils, and the evapotranspiration. An approximate analytical solution to steady flow in the system was obtained. It was found that the rate of soil water flow was mainly determined by the saturated conductivity of soils and in less extent by the friction slope and the slope angle in the steady condition. A finite difference solution to non-steady flow was found satisfactory in simulating the experimental data.

## 34-3950

**Random thermal stress in concrete containments.**

Singh, M.P., et al. *American Society of Civil Engineers, Structural Division, Journal*, July 1980, 106(ST7), p.1481-1496, 7 refs.

Heller, R.A.

**Concrete structures, Thermal stresses, Temperature gradients, Temperature variations, Design, Analysis (mathematics).**

## 34-3951

**Arctic line pressure testing alternatives.**

Marks, A., *Oil and gas journal*, July 7, 1980, 78(27), p.126-132, 20 refs.

**Pipelines, Cold weather performance, Pressure, Hydraulics, Tests, Density, Permafrost, Design criteria.**

## 34-3952

**Textiles used in roadbed construction on weak soils.** [Tekstil'nye materialy v konstruktivnykh avtomobil'nykh dorog na slabykh gruntakh].

Polunovskii, A.G., et al. *Avtomobil'nye dorogi*, May 1980, No.5, p.13-15, In Russian. 3 refs.

**Roadbeds, Foundations, Construction materials, Roads, Loess, Loams.**

## 34-3953

**Forecasting the strength of stabilized soils.** [Prognoz prochnosti ukreplennykh gruntov].

Khabibullina, E.N., *Avtomobil'nye dorogi*, May 1980, No.5, p.20-21, In Russian. 1 ref.

**Roadbeds, Foundations, Soil stabilization, Soil strength, Roads.**

## 34-3954

**Roads in Finland.** [Dorogi Finliandii].

Babkov, V.F., *Avtomobil'nye dorogi*, May 1980, No.5, p.28-30, In Russian.

**Roads, Roadbeds, Frost heave, Pavements, Winter maintenance, Snow removal, Glaze, Chemical ice prevention.**

## 34-3955

**Environmental protection, a public responsibility.**

[Okhrana prirody - zabota obshchaya].

Miloserdov, V.N., *Transportnoe stroitel'stvo*, June 1980, No.6, p.1-2, In Russian.

**Environmental protection, Transportation, Railroads, Construction.**

## 34-3956

**Increasing transportation capacity of planned latitudinal lines.** [Puti effektivnogo uvelicheniya proizvodnospobnosti formiruemykh shirotnykh magistralей].

Engel'ke, V.A., et al. *Transportnoe stroitel'stvo*, June 1980, No.6, p.42-44, In Russian.

Engel'ke, G.V.

**Railroads.**

## 34-3957

**Performance of support walls built on permafrost.**

[Osobennosti raboty podpornykh stenok na vechnomerzlykh gruntakh].

Novikov, F.I.A., *Transportnoe stroitel'stvo*, June 1980, No.6, p.45-46, In Russian. 3 refs.

**Slope stability, Supports, Walls, Permafrost beneath structures, Ground ice, Design.**

## 34-3958

**Frost damage to cambium of plants introduced in Arkhangel'sk.** [O povrezhdenii zamorozkami kambia drevnykh introdutsentov v Arkhangel'ske].

Nilov, V.N., Moscow: *Glavnyi botanicheskii sad, Bulletin*, 1979, Vol.114, p.50-57, In Russian. 11 refs.

**Introduced plants, Trees (plants), Frost resistance, Plant physiology.**

## 34-3959

**Investigation of vertical moisture transport in the upper layers of undrained highmoor bogs by means of radioactive isotopes.**

Sukhanov, V.I., *Soviet hydrology: selected papers*, 1978, 17(1), p.1-5, 8 refs. For Russian original see 32-4592.

**Swamps, Soil water, Moisture transfer, Capillarity, Evaporation, Radioactive isotopes.**

## 34-3960

**Role of the thermal factor in the formation of bogs in the Amur Region.**

Kholoden, E.E., *Soviet hydrology: selected papers*, 1978, 17(1), p.6-10, 9 refs. For Russian original see 32-4593.

**Taiga, Paludification, Peat, Soil freezing, Frost penetration, USSR—Amur River.**

## 34-3961

**Characteristics of automatic snow depth monitoring.** [Vodop'ianova, L.S., et al. *Soviet hydrology: selected papers*, 1978, 17(1), p.40-42, 6 refs. For Russian original see 33-1235.

Krichak, M.O.

**Snow cover distribution, Snow surveys, Snow accumulation, Snow depth, Monitors.**

## 34-3962

**Method for the long-range forecasting of the dates of ice appearance in the rivers of the Northeastern USSR.**

Savchenkova, E.I., *Soviet hydrology: selected papers*, 1978, 17(1), p.47-50, 5 refs. For Russian original see 33-1474.

**River ice, Long range forecasting, Freezep, Ice forecasting, Ice reporting.**

## 34-3963

**Computation of the thickness and structure of the ice cover on rivers in the northern European USSR.**

Amineva, V.I.A., *Soviet hydrology: selected papers*, 1978, 17(1), p.51-52, 8 refs. For Russian original see 33-1477.

**Icebound rivers, Ice surveys, Ice cover thickness, Ice structure, Floating ice.**

## 34-3964

**Use of ice jam typification from aircraft observation data in forecasting maximum stages in the Lena River.**

Rudnev, A.S., *Soviet hydrology: selected papers*, 1978, 17(1), p.53-56, 3 refs. For Russian original see 33-1481.

**Ice conditions, Aerial surveys, Ice surveys, Ice breakup, Ice jams, USSR—Lena River.**

## 34-3965

**Remote snow cover measurements for forecasting the runoff of mountain rivers.**

Borovikova, L.N., et al. *Soviet hydrology: selected papers*, 1978, 17(1), p.57-61, 5 refs. For Russian original see 32-708.

Kononov, V.G.

**Runoff, River basins, Forecasting, Snow cover distribution, Snow surveys, Snow water equivalent, Remote sensing, Rivers.**

## 34-3966

**Mathematical model of water infiltration into frozen soil.**

Motovilov, I.U.G., *Soviet hydrology: selected papers*, 1978, 17(1), p.62-66, 9 refs. For Russian original see 32-2314.

**Frozen ground, Permeability, Meltwater, Ground thawing, Seepage, Soil water migration, Mathematical models.**

## 34-3967

**Method of predicting snow avalanches by means of image recognition programs.**

Khomeniuk, I.U.V., *Soviet hydrology: selected papers*, 1978, 17(1), p.67-73, 5 refs. For Russian original see 32-712.

**Avalanche forecasting, Computer applications, Snow surveys, Data processing.**

## 34-3968

**Hydrochemical regime of the Severtsov glacier.**

Kamalov, L.F., *Soviet hydrology: selected papers*, 1978, 17(1), p.74-76, 4 refs. For Russian original see 32-1598.

**Mountain glaciers, Glacier ablation, Glacial hydrology, Meltwater, Glacial rivers, Water chemistry.**

## 34-3969

**Results of application of infrared equipment for the investigation of hydrologic objects.**

Bogorodskii, V.V., et al. *Soviet hydrology: selected papers*, 1978, 17(1), p.77-79, 4 refs. For Russian original see 31-3181.

Ivanov, V.V., Martynova, E.A., Nalimov, I.U.V.

**River ice, Sea ice, Ice surveys, Infrared reconnaissance, Infrared equipment, Ice cover thickness, Ice melting, Ice formation.**

## 34-3970

**Regime of the present-day glaciation of the Caucasus.**

Kotliakov, V.M., et al. *Zeitschrift für Gletscherkunde und Glazialgeologie*, 1979, 15(1), p.7-21, In English with German summary. Refs. p.19-21.

Kienke, A.N.

**Glacier mass balance, Mountain glaciers, Alpine glaciation, Glacier heat balance, Climatic factors, USSR—Caucasus.**

## 34-3971

**Subglacial travertine and associated deposits in the Carstenz area, Irian Jaya, Republic of Indonesia.**

Peterson, J.A., et al. *Zeitschrift für Gletscherkunde und Glazialgeologie*, 1979, 15(1), p.23-29, In English with German summary. 23 refs.

Moresby, J.F.

**Subglacial observations, Glacial deposits, Sediments, Glacier beds, Alpine glaciation, Regelation, Theories, Indonesia.**

## 34-3972

**Pattern of glacial dispersal and comminution of rock fragments and mineral grains from two point sources.**

Shakesby, R.A., *Zeitschrift für Gletscherkunde und Glazialgeologie*, 1979, 15(1), p.31-45, Refs. p.43-45.

**Glacial deposits, Rocks, Fines, Glacier flow.**

## 34-3973

**Constitutive laws of ice.** [Stoffgleichungen von Eis].

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**Ice physics, Ice crystals, Ice creep, Ice elasticity, Ice plasticity, Sea ice, Viscoelasticity, Ice mechanics, Ice salinity.**

## 34-3974

**Snow as a mixed dielectric: on the geometry of water inclusions.** [Schnee als Mischdielektrikum: zur Geometrie der Wassereinschlüsse].

Ambach, W., et al. *Zeitschrift für Gletscherkunde und Glazialgeologie*, 1979, 15(1), p.65-72, In German with English summary. 11 refs.

Schittelkopf, H.

**Snow physics, Snow electrical properties, Snow water content, Dielectric properties.**

## 34-3975

**Crystal orientation fabrics in relation to structures and strain, Griesgletscher, Valais, Switzerland.**

Hambrey, M.J., *Zeitschrift für Gletscherkunde und Glazialgeologie*, 1979, 15(1), p.73-86, In English with German summary. 24 refs.

**Glacier flow, Ice crystal structure, Orientation, Strains, Shear strain, Icefalls, Alpine glaciation.**

## 34-3976

**Mass budget of Stubbacher Sonnblickkees in the years 1971/72 through 1977/78.** [Massenhaushaltswerte vom Stubbacher Sonnblickkees für die Jahre 1971/72 bis 1977/78].

Slupetzky, H., *Zeitschrift für Gletscherkunde und Glazialgeologie*, 1979, 15(1), p.87-93, In German with English summary. 6 refs.

**Glacier mass balance, Glacier ablation, Glacier alimination.**

## 34-3977

**New mass budget values of Hintereisferner and Kesselwandferner in the Ötztal Alps, 1975/76-1977/78.**

[Neue Massenhaushaltswerte von Hintereisferner und Kesselwandferner, 1975/76-1977/78].

Markl, G., *Zeitschrift für Gletscherkunde und Glazialgeologie*, 1979, 15(1), p.95-99, In German with English summary. 1 ref.

**Glacier mass balance, Glacier ablation, Glacier alimination, Seasonal variations.**



- 34-3978**  
Reconstruction of mass budget values of Hinterseiferner with climatological data. (Rückrechnung des Massenhaushaltes des Hinterseiferners mit Hilfe von Klimadaten). Steinacker, R., *Zeitschrift für Gletscherkunde und Glazialgeologie*, 1979, 15(1), p.101-104, In German with English summary. 10 refs.  
Glacier mass balance, Glacier oscillation, Meteorological data, Climate.
- 34-3979**  
Glaciers of the Austrian Alps, 1977/78. (Die Gletscher der österreichischen Alpen 1977/78). Kinzl, H., *Zeitschrift für Gletscherkunde und Glazialgeologie*, 1979, 15(1), p.105-113, In German.  
Mountain glaciers, Glacier mass balance, Austria—Alps.
- 34-3980**  
Follow-up measurements in the Pasterze area (Glockner Group), 1978. (Nachmessungen im Bereich der Pasterze (Glocknergruppe) im Jahre 1978). Wakonigg, H., *Zeitschrift für Gletscherkunde und Glazialgeologie*, 1979, 15(1), p.115-118, In German.  
Glacier mass balance, Glacier surveys, Alpine glaciation.
- 34-3981**  
Permafrost in Western Canada—a report of the Third International Permafrost Conference. Péwé, T.L., *Zeitschrift für Gletscherkunde und Glazialgeologie*, 1979, 15(1), p.119-125.  
Permafrost, Meetings.
- 34-3982**  
Annual report 1978-79. Alaska. University. Geophysical Institute, Fairbanks, 1979, 190p., Refs. p.151-157.  
Glaciers, Glaciology, Geophysical surveys, Meteorology, Research projects, Permafrost, Remote sensing, Volcanoes, Sea ice, Frozen ground.
- 34-3983**  
Spatial distribution of water content in the snow cover in Poland. (Rozkład przestrzenny zapasu wody w pokrywie śnieżnej w Polsce). Sadowski, M., *Materiały badawcze. Seria: Hydrologia i oceanologia*, Warsaw, Instytut Meteorologii i Gospodarki Wodnej, 1980, 148p., In Polish with English and Russian summaries. 59 refs.  
Snow water content, Snow cover distribution, Seasonal variations, Analysis (mathematics), Snow loads, Structures, Poland.
- 34-3984**  
Community planning and development in Canada's Northwest Territories. Gerein, H.J.F., Government of the Northwest Territories, Mar. 1980, 175p., Refs. p.163-165.  
Permafrost, Climate, Vegetation, Urban planning, Transportation, Cold weather construction, Building codes, Waste treatment, Telecommunication, Environments, Canada—Northwest Territories.
- 34-3985**  
Flow patterns in the central North American ice sheet. Shilts, W.W., *Nature*, July 17, 1980, 286(5770), p.213-218, 31 refs.  
Ice sheets, Ice mechanics, Glacier flow, Paleoclimatology, Glaciation, Glacial deposits, Glacier beds.
- 34-3986**  
Crystal size and climatic record down to the last ice age from Antarctic ice. Duval, P., et al., *Earth and planetary science letters*, June 1980, 48(1), p.59-64, 18 refs.  
Lorius, C.  
Ice crystal size, Ice cores, Climatic changes.  
Crystal size measurements were performed along a 905-m-long ice core obtained from east central Antarctica (Dome C). The expected increase of crystal size with age is observed in the ice deposited during the Holocene; further down major changes appear to be associated with climatic events and, in particular, with the transition from the last glacial age to present conditions. Physical mechanisms which may explain these data are discussed. A tentative estimation of the age of the deep ice is made from the ice crystal growth law. (Auth.)
- 34-3987**  
Glaciological studies by Landsat imagery of perimeter of Dronning Maud Land, Antarctica. Orheim, O., Oslo. Norsk polarinstitutt. Skrifter, 1978, No.169, p.69-80, 7 refs.  
Sea ice, Ice shelves, Icebergs, Spacecraft, Photointerpretation.  
The investigation has utilized Landsat imagery to analyze changes in the Dronning Maud Land coastline between 10W and 20E and to obtain statistical data on ocean dynamics, and sea ice and iceberg distribution in this region of the Antarctic.
- The imagery for the investigation was provided by National Aeronautics and Space Administration (NASA), USA. Altogether 67 images were received, mostly from the 1975/76 austral summer. Band MSS 7 has been found most useful for the ice studies. The other bands were also used to attempt differentiation between ice floes and icebergs, but with inconclusive results. The best method to distinguish between the ice shelf edge and the fast ice, and to bring out ice rises on the ice shelf, has been to copy the MSS 7 negatives at 3-10 times < normal > exposure. (Auth.)
- 34-3988**  
Snow accumulation and snow stratigraphy on Riiser-Larsenisen, Dronning Maud Land, Antarctica. Repp, K., Oslo. Norsk polarinstitutt. Skrifter, 1978, No.169, p.81-92, 7 refs.  
Snow accumulation, Snow physics, Snow stratigraphy, Antarctica—Queen Maud Land.  
The western part of Riiser-Larsenisen is fairly flat, with small undulations difficult to detect. Outstanding features are an ice dome of 200 metres elevation and a long, narrow depression parallel to the edge of the ice shelf. Snow stratigraphy and density were measured in nine pits, the deepest 4.5 metres. Mean accumulation of all pits for the year 1976 was 588 mm in water equivalent, which is higher than earlier investigations. Five snow cores to depths of 11 to 15 metres were collected for laboratory analyses. (Auth.)
- 34-3989**  
Offshore pipelines in the Arctic. *Pipeline and gas journal*, Apr. 1980, 207(4), p.20-24.  
Pipe laying, Offshore structures, Engineering, Design, Sea ice, Ice conditions, Beaufort Sea.
- 34-3990**  
Small-scale testing of soils for frost action. Sayward, J.M., *Geotechnical testing journal*, 1979, 2(4), MP 1309, p.223-231, 18 refs.  
Frost action, Frost heave, Ice needles, Soil water migration, Soil tests.  
A method is described for convenient study of frost action, including soil heaving and needle ice formation. The apparatus is simple and small and the procedure requires only 25 cu cm soil specimens. The method could be useful for screening either large numbers or limited quantities of soils or soil additives for frost susceptibility. The method described was used to perform a limited number of tests with several soils. The tests obtained action in the form of soil heave, ice heave, or ice needles, yielding maximum heights up to three to six times the initial 40-mm soil depth. Maximum growth rates were up to 1 to 3 mm/hr for soil heaves and 3 to 7 or more mm/hr for ice heaves and ice needles. Initial trials showed that thicker additives and possibly other treatments can restrict frost action.
- 34-3991**  
Assessment of Arctic offshore pipelines. Muraszew, A., et al., U.S. Office of Pipeline Safety Regulation. Report, Apr. 1980, DOT/RSPA/MTB-80/1, 6 sections, 182 refs.  
Wright, R.C., Hepperle, C.  
Pipe laying, Offshore structures, Ice conditions, Sea ice, Oceanographic surveys, Safety, Engineering, Logistics.
- 34-3992**  
Model application to urban groundwater problems of Fairbanks, Alaska. Kane, D.L., U.S. Office of Water Research and Technology. Completion report, Jan. 1980, No.76-2, 30p. PB80-166 465.  
Permafrost hydrology, Ground water, Water transport, Soil water migration, Snowmelt, Precipitation (meteorology), Temperature gradients, Models.
- 34-3993**  
Flow of salt glaciers. Wenkert, D.D., *Geophysical research letters*, June 1979, 6(6), p.523-526, 13 refs.  
Mountain glaciers, Salt ice, Ice creep, Stress strain diagrams, Ions.
- 34-3994**  
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Braicovich, L., De Michelis, B.  
Ice spectroscopy, Hydrogen bonds, Ultraviolet radiation, Photometry.
- 34-3995**  
Analysis of morphological characteristics of an alpine glacier icefall. (Analyse des caractères morphologiques d'une chute de glacier alpin). Tison, J.L., *Revue belge de géographie*, 1978, 102(2/3), p.89-107, In French with English summary. 25 refs.  
Icefalls, Glacier mass balance, Glacier flow, Subglacial observations.
- 34-3996**  
Relationships among lead, iodine, trace metals and ice nuclei in a coastal urban atmosphere. Borys, R.D., et al., *Journal of applied meteorology*, Nov. 1979, 18(11), p.1490-1494, 27 refs.  
Duce, R.A.  
Ice nuclei, Nucleating agents, Aerosols, Particles, Wind direction, Air pollution, Atmospheric composition, Air masses.
- 34-3997**  
Keeping it cool with liquid nitrogen. *Concrete construction*, Aug. 1980, 25(8), p.606, 609.  
Concrete hardening, Concrete freezing, Artificial freezing, Coolants, Air temperature, Temperature effects.
- 34-3998**  
Cloud/icing/visibility analysis systems (CIVAS) and forecast development plan. Mount, W.D., et al., U.S. Atmospheric Sciences Laboratory. Report, Apr. 1980, ASL-CR-80-0089-1, 64p., ADA-085 530, 2 refs.  
Fow, B.R., Mount, B.D.  
Aircraft icing, Ice forecasting, Cloud physics, Visibility, Temperature effects, Computer programs.
- 34-3999**  
Blow molded polyethylene snow scoop improves on 300-year-old idea. *Plastics design and processing*, Nov. 1979, 19(2), p.38-39.  
Polymers, Snow removal, Equipment.
- 34-4000**  
Utilization of spaceborne microwave radiometers for monitoring snowpack properties. Rango, A., et al., *Nordic hydrology*, 1979, 10(1), p.25-40, 17 refs.  
Chang, A.T.C., Foster, J.L.  
Snow cover distribution, Remote sensing, Radiometry, Microwaves, Snow accumulation, Snow line, Spaceborne photography, Scanning electron microscopy.
- 34-4001**  
Polarization processes in the ice lattice. 1. Approach by thermodynamics of irreversible processes. New experimental verification by means of a universal relation. Hubmann, M., *Zeitschrift für Physik B*, 1979, 32(2), p.127-139, 29 refs.  
Ice electrical properties, Polarization (charge separation), Lattice models, Thermodynamic properties, Doped ice, Dielectric properties, Theories.
- 34-4002**  
Polarization processes in the ice lattice. 2. Approach by Kirkwood's theory. Comparison with the results from thermodynamics of irreversible processes. Hubmann, M., *Zeitschrift für Physik B*, 1979, 32(2), p.141-146, 13 refs. For Pt. 1 see 34-4001.  
Ice electrical properties, Polarization (charge separation), Lattice models, Molecular structure, Dielectric properties, Theories.
- 34-4003**  
Icicles as crystallization phenomena. Knight, C.A., *Journal of crystal growth*, May 1980, 49(1), p.193-198, 21 refs.  
Ice crystal growth, Ice formation, Orientation, Thermal diffusion, Ice structure.
- 34-4004**  
Regularities governing the development of the topography and glaciers of Tien Shan. (Zakonomernosti razvitiia rel'efa i lednikov Tian' Shania). Zabirow, R.D., ed. Frunze, Ilim, 1980, 110p., In Russian. For selected papers 34-4005 through 34-4013. Refs. passim.  
Mass balance, Rock streams, Glacier surfaces, Mountain glaciers, Orientation, Glacier flow, Albedo, Snow accumulation, Topographic maps, Flow rate, Glacier ice, Alpine landscapes, USSR—Tien Shan.
- 34-4005**  
Velocity fields of the Kara-Batkak glacier. (Polia skostei lednika Kara-Batkak). Bakov, F.K., Zakonomernosti razvitiia rel'efa i lednikov Tian' Shania (Regularities governing the development of the topography and glaciers of Tien Shan) edited by R.D. Zabirow, Frunze, Ilim, 1980, p.3-21, In Russian. 8 refs.  
Glacier flow, Glacier beds, Glacier surfaces, Glacier mass balance, Flow rate, Glacier ice.

34-4006

**Determining glacier areas and orientation of surfaces from topographic maps.** (Opredelenie ploshchadet i orientatsii poverkhnosti lednikov po topograficheskim kartam).

Kuz'michenok, V. A., *Zakonomernosti razvitiia rel'ef i lednikov Tian' Shania* (Regularities governing the development of the topography and glaciers of Tien Shan) edited by R. D. Zabiroy, Frunze, Ilim, 1980, p.22-47, In Russian. 22 refs.

**Glacier surfaces, Orientation, Topographic maps, Glacier ice, Mathematical models.**

34-4007

**Variations of glacier surface albedo during summer.** (Izmenenie al'bedo poverkhnosti lednika v letnii period).

Dikikh, L. L., *Zakonomernosti razvitiia rel'ef i lednikov Tian' Shania* (Regularities governing the development of the topography and glaciers of Tien Shan) edited by R. D. Zabiroy, Frunze, Ilim, 1980, p.48-57, In Russian. 7 refs.

**Glacier surfaces, Albedo, Snowmelt, Glacier ablation, Snowfall.**

34-4008

**Snow accumulation on Central Tien Shan glaciers.** (Sneogonakoplenie na lednikakh vnutrennego Tian'-Shania).

Safonova, A. A., *Zakonomernosti razvitiia rel'ef i lednikov Tian' Shania* (Regularities governing the development of the topography and glaciers of Tien Shan) edited by R. D. Zabiroy, Frunze, Ilim, 1980, p.58-67, In Russian. 4 refs.

**Mountain glaciers, Glacier surfaces, Snow accumulation, Snow surveys, Snow depth, Snow water equivalent.**

34-4009

**Formation and development of bald-peak ice in the mountains of Central Tien Shan, Siberia and the Far East.** (Formirovanie i razvitiie gol'tsovoogo l'da v gorakh Tsentral'nogo Tian'-Shania, Sibiri i Dal'nego Vostoka).

Tarakanov, A. G., *Zakonomernosti razvitiia rel'ef i lednikov Tian' Shania* (Regularities governing the development of the topography and glaciers of Tien Shan) edited by R. D. Zabiroy, Frunze, Ilim, 1980, p.96-107, In Russian. 16 refs.

**Alpine landscapes, Vegetation factors, Rock streams, Snow melting, Talus, Ice cement.**

34-4010

**Dynamics of vegetational cover and the development of cryogenic relief forms.** (Dinamika rastitel'nogo pokrova i razvitiie mrazotnykh form rel'efa).

Tyrtikov, A. P., Moscow, Nauka, 1979, 116p., In Russian with English table of contents enclosed. Refs. p.112-115.

**Tundra, Swamps, Ice veins, Arctic landscapes, Deserts, Frost mounds, Patterned ground, Polygonal topography, Vegetation, Lichens, Mosses.**

34-4011

**Management of forest resources.** (Osvoenie lesnykh bogatstv).

Timofeev, N. V., Moscow, Lesnaia promyshlennost', 1979, 144p., In Russian with English table of contents enclosed.

**Forestry, Forest land, Taiga, Cryogenic soils, Plant ecology, Biomass, Ecosystems, Roads, Houses, Permafrost beneath structures, Transportation, Baykal Amur railroad.**

34-4012

**Modeling productivity and frost hardness of plants.** (Modelirovanie produktivnosti i kholodoustoichivosti rastenii).

Kurets, V. K., et al., Leningrad, Nauka, 1979, 15p., In Russian with English table of contents enclosed. Refs. p.145-154.

Popov, E. G., *Plants (botany), Frost resistance, Models, Air temperature, Soil temperature, Plant ecology, Microclimatology, Plant physiology, Photosynthesis, Computerized simulation.*

34-4013

**Hydrophobic-plasticizing admixtures to concretes used in road construction.** (Gidrofobno-plastifitsiruiushchie dobavki k dorozhnyim betonam).

Teshbaev, R. D., Tashkent, Fan, 1980, 63p., In Russian with English table of contents enclosed. 91 refs.

**Pavements, Concrete admixtures, Frost resistance, Concrete strength, Roads, Concretes.**

34-4014

**Formation and development of swamp systems.** (Formirovanie i razvitiie bolotnykh sistem).

Kiriushkin, V. N., Leningrad, Nauka, 1980, 88p., In Russian with English table of contents enclosed. 69 refs.

**Taiga, Paludification, Glacial deposits, Swamps, Soil formation, Vegetation, Peat, Landscape types, Permafrost distribution, Mapping, Charts.**

34-4015

**Life in the tundra.** (Zhizn' tundry).

Chernov, I. U., Moscow, Mysl', 1980, 236p., In Russian with English table of contents enclosed. Refs. p.233-235.

**Tundra, Cryogenic soils, Plant ecology, Ecosystems, Plants (botany), Animals, Air temperature, Soil temperature, Landscape types, Arctic landscapes.**

34-4016

**Thawing effect on the strength of roadbeds.** (Vliianie ottepli na prochnost' zemliannogo polotna avtomobil'nykh dorog).

Poritskii, R. Z., *Stroitel'naiia teplofizika, teplogazovozobrazhenie i ventilatsiia*, 1978, Vol.4, p.14-24, In Russian. 4 refs.

DLC TA418.52.S78

**Roadbeds, Bearing strength, Freeze thaw cycles, Ground thawing, Roads, Design.**

34-4017

**Design of lightweight multilayered panels with polystyrene foam thermal insulation.** (Teplotekhnicheskii raschet oblegchennykh mnogosloynnykh paneli s uteplytelem iz penopolistirola).

Zhuk, I. P., et al., *Stroitel'naiia teplofizika, teplogazovozobrazhenie i ventilatsiia*, 1978, Vol.4, p.65-72, In Russian. 4 refs.

Ivanova, L. A., Minchenkova, L. P., DLC TA418.52.S78

**Heat loss, Prefabrication, Reinforced concretes, Panels, Thermal insulation, Design, Buildings.**

34-4018

**Investigations on snow parameters by radiometry in the 3- to 60-mm wavelength region.**

Hofer, R., et al., *Journal of geophysical research*, Jan. 20, 1980, 85(C1), p.453-460, 30 refs.

Mätzler, C., **Remote sensing, Snow water content, Radiometry, Temperature variations.**

34-4019

**A.R.A. Almirante Irizar.** *Holland shipbuilding*, Apr. 1979, 28(2), p.76.

**Ships, Icebreakers.**

An icebreaker ordered by the Argentinian government and built at the Wärtsilä facility in Helsinki was delivered in early 1979. The ship is described in terms of personnel (passengers and crew), stability in heavy weather, power plant, equipment, waste disposal, and ice testing.

34-4020

**Ice cores.**

MacKinnon, P. K., comp., *Glaciological data*, May 1980, GD-8, 139p., Refs. passim. For selected articles see 32-2118 and 34-4021 through 34-4031, or F-19693, and F-23554 through F-23563.

**Ice cores, Data processing, Bibliographies, Antarctica.**

Included in this issue are: a brief report of a workshop on the status and future of ice core data and research, held in Boulder in Sep. 1979; an inventory of ice core studies and research facilities in North America and throughout the world with a substantial number of ice core tables and core site maps, including 182 sites throughout Antarctica, information storage and exchange; several contributed papers dealing with various aspects of ice cores; and a classified ice core bibliography containing 345 citations. Many of these separate topics involve Antarctica.

34-4021

**Status and future of ice core data.**

Barry, R. G., et al., *Glaciological data*, May 1980, GD-8, p.1-4, 4 refs.

MacKinnon, P. K., **Ice cores, Research projects, Glaciology, Data processing.**

The authors review the current state of the management of ice core data as data collecting has expanded with the establishment of large scale national and international programs. With the expansion have come problems such as data exchanging, advisability of having a central data base, data formats and standards, and defining archivable data. Future possibilities for data centers are explored.

34-4022

**Workshop on the Status and Future of Ice Core Research and Ice Core Data (Boulder, Colorado, 24-26 September 1979).** *Glaciological data*, May 1980, GD-8, p.5-14.

**Meetings, Research projects, Data processing, Ice cores, Climate, Ice coring drills, Age determination.**

Presented here is an outline of reviews and recommendations of working groups on core and core data management, application of ice core research to climate studies, ice core dating, and drill technology and the interface with ice core research needs. Also included is the workshop program schedule and a listing of participants.

34-4023

**Ice core inventory.**

MacKinnon, P. K., *Glaciological data*, May 1980, GD-8, p.15-57, 7 refs.

**Ice coring drills, Core samplers, Ice temperature.**

This paper reports the status of past and present ice core investigations, documentation of core sites, the groups currently involved in ice core drilling, the principal centers conducting ongoing ice core analyses, and the availability of cores and data. Ice core tables, listing 414 individual cores, contain data for Arctic Canada, Greenland, temperate ice zones and Antarctica.

34-4024

**Ice core information storage and exchange system.**

Thompson, J. M., et al., *Glaciological data*, May 1980, GD-8, p.59-63.

MacKinnon, P. K., **Ice cores, Data processing.**

This paper presents an overview of a data and information storage and exchange system (DISES) developed by the World Data Center A for Glaciology for the management of ice core and related data. The design of this system consists of specifications for the data file structure, the computer programs necessary to obtain the proposed operational capabilities, and procedures to use the programs and data files within the host computer facility. Elements of this design have been shaped by the nature of ice core data sets and by suggestions received from the glaciological community. (Auth.)

34-4025

**Central ice core storage facility—ice core sampling procedures.**

U.S. National Science Foundation. Division of Polar Programs, *Glaciological data*, May 1980, GD-8, p.66-68.

**Ice cores, Cold storage.**

Procedures and criteria are outlined by which researchers may have access to the ice cores stored by NSF's Ice Core Storage Facility. The curator of the facility, following discussions of a project with a researcher makes recommendations to the Chief Scientist, NSF, who approves or disapproves the use of core samples. If approval is given, the curator distributes the samples.

34-4026

**Specimen and core-sample distribution policy.**

U.S. National Science Foundation. Division of Polar Programs, *Glaciological data*, May 1980, GD-8, p.69-70.

**Ice cores, Drill core analysis.**

Given here are general policies and procedures established by NSF as to how ice and sediment cores under its authority will be distributed among qualified researchers. Contact addresses and telephone numbers are listed for storage facilities and the kind of material stored at each of the four locations is noted. Ice and sediment cores are those retrieved from drilling in Antarctica during Eltanin cruises, RISP, and DVDP.

34-4027

**Ice core sampling.**

Radok, U., *Glaciological data*, May 1980, GD-8, p.71-76, 9 refs.

**Ice cores, Ice sampling, Research projects, Antarctica, Greenland.**

Before fine details of ice core records can be accepted as significant, it will be necessary to compare the features of neighboring cores as a function of their separation. Once the local variability of such features has been established, the way is open to sampling the essential features of major catchments in the Antarctic and Greenland ice sheets. It is suggested that further deep cores are needed on the Byrd flow line, and on flow lines from Dome C towards Casey and Dumont d'Urville, in the regions of relatively fast flow. Together with the existing core data and improved models, these new data will define the thermodynamics and dynamics of two major Antarctic catchments. Concurrent intermediate and shallow sampling programs are needed to complete the material from which their histories could be reconstructed. The concept of a surface sampling task force is outlined. This would collaborate with aerial radar sounding, deep drilling, and computer modeling teams in a coordinated program for completing the task of describing the polar ice sheets as physical systems. (Auth. mod.)

34-4028

**Polar Ice Coring Office ice drill status report.**

Kuivinen, K. C., et al., *Glaciological data*, May 1980, GD-8, p.77-85, 16 refs.

Koci, B. R., **Ice coring drills.**

The report reviews the capabilities and present status of ice drilling equipment developed for use in the Antarctic, Arctic, and other alpine localities. It is limited to a discussion of drilling equipment developed through funding by the NSF-DPP, and currently under the custodianship of the Polar Ice Coring Office. A brief background statement is followed by individual discussions of the seven ice drilling and coring devices currently in the NSF-DPP inventory.

34-4029

**Nomenclature applied to ice cores: a geological viewpoint.**

Andrews, J.T., *Glaciological data*, May 1980, GD-8, p.87-89, 8 refs.

**Ice cores, Terminology.**

34-4030

**Time-priority studies of deep ice cores.**

Gow, A.J., *Glaciological data*, May 1980, GD-8, MP 1308, p.91-102, 18 refs.

**Ice cores, Drill core analysis, Antarctica—Byrd Station.**

Both the Greenland and Antarctic ice sheets have been successfully core-drilled to bedrock, 1390 m at Camp Century, Greenland in 1966 and 2164 m at Byrd Station, Antarctica in 1968. Core and borehole studies at both sites have revealed a wealth of interesting results, especially at Byrd Station where extensive studies of cores were begun as soon as they were pulled out of the drill hole. Continuing investigations of these Byrd Station drill cores, including recent observations of apparent widespread recrystallization in certain sections of ice core, further confirm the importance of initiating as many studies as possible at the drill site. Any list of the studies that should be conducted on deep ice cores must recognize two kinds of research: 1) those studies of a time-priority nature that must be initiated as soon as cores are pulled to the surface and, 2) other essential studies to which relaxation of the ice is not a factor. These latter studies can generally be deferred until cores are transported to more permanent storage facilities outside Antarctica. (Auth. mod.)

34-4031

**Ice core work at the Laboratoire de Glaciologie, CNRS, Grenoble.**

Raynaud, D., *Glaciological data*, May 1980, GD-8, p.103-107, 14 refs.

**Ice cores, Drill core analysis, Laboratories.**

The Laboratoire de Glaciologie is dedicated to environmental research on ice masses, stratigraphic and climatic studies. The work done by the Grenoble laboratory includes the recovery and analysis of ice cores in order to obtain a record of past environmental conditions that prevailed near the surface of ice masses. For this purpose the best conditions have been found on polar ice sheets where large areas are unaffected by surface melting and ice thicknesses provide long time series. Much of the field work has been done in Antarctica, where cores were drawn for climate and atmospheric composition studies. (Auth. mod.)

34-4032

**Origin of the oxygen-isotope composition in the snow cover in East Antarctica.**

Vilenskii, V.D., et al., *Geochemistry international*, 1978, 15(2), p.180-185, For Russian original see 10F-21486 or 33-3204, 10 refs.

Tesis, R.V., Kiselevskii, M.A., Kochetkova, S.N.

**Snow composition, Isotope analysis, Oxygen isotopes, Antarctica—East Antarctica.**

Oxygen-isotope compositions have been determined for snow-cover specimens from five areas between the Mirny and Pionerskaya stations in East Antarctica. The height increases away from the coast, while the mean air temperature falls, and this is accompanied by a fall in delta-18-O. In the coastal zone (less than 50 km from Mirny, height less than 0.86 km, air temperature above -19 deg) there are only slight variations in the oxygen-isotope composition. Further from the coast, between 50 and 353 km, the variation in delta-18-O with temperature amounts to 0.6‰ per degree. These variations in delta-18-O in the annual layers include effects arising from the details of the formation at the sampling points, so the data cannot be used directly to trace the temperature variations from year to year. The spatial nonuniformity in the isotope composition also results in considerable nonuniformity in the isotope composition for specimens taken within a restricted area. (Auth.)

34-4033

**Geocryological investigations in West Yakutia.** (Geokriologicheskie issledovaniia v Zapadnoi Iakutii).

Mel'nikov, P.I., ed., Novosibirsk, Nauka, 1980, 113p., In Russian. For individual papers see 34-4034 through 34-4045. Refs. passim.

**Foundations, Permafrost bases, Thermopiles, Power line supports, Hydraulic structures, Earth dams, Permafrost hydrology, Taliks, Buildings, Subpermafrost ground water.**

34-4034

**Evaluating the depth of seasonal thawing for operating electric power transmission lines.** (Nekotorye otsenki glubiny sezonnogo protaivaniia v sviazi s eksploatatsiei LEP).

Spesivtsev, V.I., et al., *Geokriologicheskie issledovaniia v Zapadnoi Iakutii* (Geocryological investigations in West Yakutia) edited by P.I. Mel'nikov, Novosibirsk, Nauka, 1980, p.3-10, In Russian.

**Power lines, Roads, Permafrost beneath structures, Active layer, Thaw depth, Vegetation factors, Human factors, Thermokarst, Gullies, Soil erosion, Construction equipment.**

34-4035

**Foundations of power transmission lines and substations.** (Fundamenty lini elektropredachi i podstantsii).

Makarov, V.I., et al., *Geokriologicheskie issledovaniia v Zapadnoi Iakutii* (Geocryological investigations in West Yakutia) edited by P.I. Mel'nikov, Novosibirsk, Nauka, 1980, p.10-22, In Russian. 2 refs.

**Foundations, Power line supports, Permafrost beneath structures, Stations, Deformation, Permafrost hydrology, Taliks.**

34-4036

**Experience in using the S.Kh.IA thermopile in Mirnyy.** (Opyt primeneniia sval SKhIA pri stroitel'stve v g. Mirnomy).

Molochnikov, A.D., *Geokriologicheskie issledovaniia v Zapadnoi Iakutii* (Geocryological investigations in West Yakutia) edited by P.I. Mel'nikov, Novosibirsk, Nauka, 1980, p.23-26, In Russian.

**Foundations, Thermopiles, Permafrost beneath structures, Permafrost control, Buildings.**

34-4037

**Fluid-bearing thermopiles in foundation construction in the North.** (K voprosu o primeneni zhidkostnykh termosifonov v severnom fundamentostroenii).

Makarov, V.I., et al., *Geokriologicheskie issledovaniia v Zapadnoi Iakutii* (Geocryological investigations in West Yakutia) edited by P.I. Mel'nikov, Novosibirsk, Nauka, 1980, p.26-40, In Russian. 7 refs.

**Foundations, Thermopiles, Permafrost hydrology, Taliks, Permafrost control.**

34-4038

**Engineering preparation of sites for construction on permafrost.** (Inzhenernaia podgotovka territorii pri stroitel'stve na vechnomerzlykh gruntakh).

Ivanov, V.S., *Geokriologicheskie issledovaniia v Zapadnoi Iakutii* (Geocryological investigations in West Yakutia) edited by P.I. Mel'nikov, Novosibirsk, Nauka, 1980, p.40-42, In Russian. 31 refs.

**Construction, Site surveys, Frozen rock temperature, Active layer, Permafrost structure, Seasonal freeze thaw, Thaw depth.**

34-4039

**Calculating temperature fields in permafrost thawing at different temperatures (applied to mining problems).** (Raschet temperaturnogo polia v vechnomerznom grunte, ottaivaiushchem v spektre temperatur).

Gur'ianov, I.E., *Geokriologicheskie issledovaniia v Zapadnoi Iakutii* (Geocryological investigations in West Yakutia) edited by P.I. Mel'nikov, Novosibirsk, Nauka, 1980, p.42-62, In Russian. 31 refs.

**Mine shafts, Permafrost thermal properties, Ground thawing, Permafrost structure, Frozen fines, Heat transfer, Analysis (mathematics).**

34-4040

**Optimal configuration of a confining bed under the pressure of subpermafrost ground water.** (Optimal'naia konfiguratsiia vechnomerzlogo vodopora vosprinimaiushchego davlenie podmerzlotnykh vod).

Gur'ianov, I.E., *Geokriologicheskie issledovaniia v Zapadnoi Iakutii* (Geocryological investigations in West Yakutia) edited by P.I. Mel'nikov, Novosibirsk, Nauka, 1980, p.62-70, In Russian. 9 refs.

**Mining, Subpermafrost ground water, Water pressure, Analysis (mathematics).**

34-4041

**Engineering and geological peculiarities of the Vilyuy River valley at the inflow of the Malaya Botuobiya tributary.** (Inzhenerno-geologicheskaia osobennost' doliny Viliuia pri vpadenii v reku Malaya Botuobiia).

Belikov, L.P., et al., *Geokriologicheskie issledovaniia v Zapadnoi Iakutii* (Geocryological investigations in West Yakutia) edited by P.I. Mel'nikov, Novosibirsk, Nauka, 1980, p.71-80, In Russian. 3 refs.

**Permafrost beneath rivers, Shore erosion, Permafrost weathering, Permafrost structure, Ice veins, Permafrost hydrology, Solifluction, Landslides.**

34-4042

**Development of ground ice in hydraulic earth structures.** (Razvitie vnutrigruatovykh ledov v nasypnykh konstruktsionnykh sooruzheniakh).

Olovin, B.A., *Geokriologicheskie issledovaniia v Zapadnoi Iakutii* (Geocryological investigations in West Yakutia) edited by P.I. Mel'nikov, Novosibirsk, Nauka, 1980, p.80-87, In Russian. 4 refs.

**Hydraulic structures, Earth dams, Ground ice, Foundations, Artificial freezing.**

34-4043

**Climatic peculiarities of West Yakutia.** (Klimaticheskaia osobennost' Zapadnoi Iakutii).

Spesivtseva, N.A., *Geokriologicheskie issledovaniia v Zapadnoi Iakutii* (Geocryological investigations in West Yakutia) edited by P.I. Mel'nikov, Novosibirsk, Nauka, 1980, p.87-95, In Russian. 4 refs.

**Climate, Topographic effects, Atmospheric circulation, Synoptic meteorology, USSR—Yakutia.**

34-4044

**Determining position and form of zero isotherms in ground thawing under pressure seepage beneath regulators.** (Opredelenie poloizheniia i formy nulevoi izotermy v ottaivaiushchikh osnovaniakh regulatorov pri napornoi filtratsii).

Vasil'eva, I.A., et al., *Geokriologicheskie issledovaniia v Zapadnoi Iakutii* (Geocryological investigations in West Yakutia) edited by P.I. Mel'nikov, Novosibirsk, Nauka, 1980, p.95-102, In Russian. 55 refs.

**Hydraulic structures, Foundations, Permafrost beneath structures, Heat transfer, Soil water migration, Ground thawing, Thawing rate, Models.**

34-4045

**Thermal regime of residential building foundations when there are unheated rooms beneath the building.** (Temperaturnyi rezhim gruntov osnovaniia zhilogo doma s kholodnymi pomescheniiami pod zdaniem).

Plotnikov, A.A., *Geokriologicheskie issledovaniia v Zapadnoi Iakutii* (Geocryological investigations in West Yakutia) edited by P.I. Mel'nikov, Novosibirsk, Nauka, 1980, p.102-107, In Russian. 5 refs.

**Residential buildings, Foundations, Permafrost beneath structures, Frozen rock temperature.**

34-4046

**Structural thermodynamics. A review.** (Stroitel'naia teplofizika. Obzornaia informatsiia).

L'vov, G.N., ed., Moscow, 1969, 100p., In Russian. For selected papers see 34-4047 through 34-4051.

**Walls, Large panel buildings, Lightweight concretes, Panels, Thermal insulation, Joints (junctions), Sealing, Cold weather tests, Residential buildings.**

34-4047

**Experimental study of air and water permeability of external wall panel joints.** (Eksperimental'nye issledovaniia vozdukho- i vodopronitsaemosti stykov naruzhnykh sten).

Roslaia, G.I., *Stroitel'naia teplofizika. Obzornaia informatsiia* (Structural thermodynamics. A review) edited by G.N. L'vov, Moscow, 1969, p.3-8, In Russian.

**Large panel buildings, Panels, Joints (junctions), Sealing, Residential buildings.**

34-4048

**Field inspection of thermal properties of 1605 AM/9 series houses with multilayer external walls.** (Naturan'nye teplotekhnicheskie issledovaniia domov s mnogosloinnyimi naruzhnymi stenami (seriia 1605 AM/9)).

Bratnina, E.I., *Stroitel'naia teplofizika. Obzornaia informatsiia* (Structural thermodynamics. A review) edited by G.N. L'vov, Moscow, 1969, p.9-15, In Russian.

**Large panel buildings, Reinforced concretes, Panels, Joints (junctions), Sealing, Thermal insulation, Cold weather tests, Heat loss.**

34-4049

**Field inspection and testing of thermal properties of enclosures of a 12-story residential building.** (Naturan'nye teplotekhnicheskie ispytaniia i obsledovaniia ogradzhaushchikh konstruktsii 12-etazhnogo zhilogo doma).

Bukharova, N.V., *Stroitel'naia teplofizika. Obzornaia informatsiia* (Structural thermodynamics. A review) edited by G.N. L'vov, Moscow, 1969, p.16-28, In Russian.

**Concrete structures, Large panel buildings, Lightweight concretes, Panels, Heat transfer, Walls, Cold weather tests, Residential buildings.**

34-4050

**Thermoinsulating properties of lightweight concrete external wall panel joints in buildings of the series II-57 and II-60.** [Issledovanie teplozashchitnykh svoystv stykov naruzhnykh panelei iz keramzitobetona dlia domov serii II-57 i II-60].  
Surkov, V.I., et al. *Stroitel'naia teplofizika. Obzornaia informatsiia* (Structural thermodynamics. A review) edited by G.N. L'vov, Moscow, 1969, p.29-35. In Russian.  
Babenko, I.D.  
DLC TH2231.S84

**Large panel buildings, Lightweight concretes, Walls, Panels, Joints (junctions), Sealing, Thermal insulation.**

34-4051

**Winter testing of thermal properties of plastic mobile houses.** [Naturanoe zimnie teplotekhnicheskoe ispytanie peredvizhnogo domika iz plastmassy].  
Avdeev, G.K., *Stroitel'naia teplofizika. Obzornaia informatsiia* (Structural thermodynamics. A review) edited by G.N. L'vov, Moscow, 1969, p.89-92. In Russian.  
DLC TH2231.S84

**Houses, Construction materials, Plastics, Panels, Thermal insulation, Cold weather tests.**

34-4052

**Construction experience gained by the Trust "Uralstroimkhanizatsiia".** [Ob opyte raboty tresta "Uralstroimkhanizatsiia"].  
Lamakina, V.S., *Mekhanizatsiia stroitel'stva*, July 1980, No.7, p.2-4. In Russian.  
**Roads, Railroads, Permafrost beneath structures, Earthwork, Cost analysis, Blasting, Frozen ground.**

34-4053

**Effectiveness of excavating machines used on the construction of the Baykal Amur railroad and the Surgut-Urengoy line.** [Effektivnost' ispol'zovaniia zemleromoi tekhniki na ob'ektakh B.A.M.R. i trassy Surgut-Urengoi].  
Bardyshev, O.A., *Mekhanizatsiia stroitel'stva*, July 1980, No.7, p.6-8. In Russian.  
**Excavation, Earthwork, Baykal Amur railroad, Equipment, Frozen ground.**

34-4054

**MGI-58 equipment for layer-by-layer excavation of ground.** [Mashina MGI-58 dlia posloynnogo freezerovaniia gruntov].  
Zakharov, V.A., et al. *Mekhanizatsiia stroitel'stva*, July 1980, No.7, p.17-18. In Russian.  
Kopechikov, V.G., Tyrtshynov, V.I., Vasil'ev, E.F.  
**Earthwork, Excavation, Equipment, Frozen ground.**

34-4055

**Effective working tool of the ETTs-165 excavator for frozen ground.** [Effektivnyi rabochii organ ekskavatora ETTs-165 dlia razrabotki merzlykh gruntov].  
Sokolov, L.K., et al. *Mekhanizatsiia stroitel'stva*, July 1980, No.7, p.18-19. In Russian.  
Danilov, A.K., Krause, V.Kh., Suurpere, A.O.I.  
**Earthwork, Excavation, Equipment, Frozen ground.**

34-4056

**Retooling bulldozers for ripping and uprooting.** [Pereoborudovanie bul'dozera dlia rykhleniia i korchevaniia].  
Prytkov, I.V., *Mekhanizatsiia stroitel'stva*, July 1980, No.7, p.23-24. In Russian.  
**Earthwork, Excavation, Equipment, Frozen ground.**

34-4057

**Joint analysis of satellite and aerial photographs and ground-based measurements for estimating the spatial distribution and temporal variations of snow cover.**

Kupriianov, V.V., *Soviet hydrology: selected papers*, 1978, 17(2), p.81-88, 2 refs. Translation from Gosudarstvennyi gidrologicheskii institut, Trudy, 1978, No.243, p.61-77.

**Snow cover distribution, Remote sensing, Aerial surveys, Spaceborne photography, Snow melting, Runoff, Snow line, Floods.**

34-4058

**Use of radar to measure ice thickness in rivers, lakes, and reservoirs.**  
Chizhov, A.N., et al. *Soviet hydrology: selected papers*, 1978, 17(2), p.116-127.  
Glushnev, V.G., Slutsker, B.D., Borodulin, V.V.  
**Ice cover thickness, Icebound lakes, Icebound rivers, Reservoirs, Airborne radar, Radar echoes, Sounding, Naleds.**

34-4059

**Estimation of the possible changes in the ice and thermal regimes of the northern Dvina River under the effect of partial runoff withdrawal.**  
Donchenko, R.V., et al. *Soviet hydrology: selected papers*, 1978, 17(3), p.186-191, 7 refs. Translated from Gosudarstvennyi gidrologicheskii institut, Trudy, No.248, p.7-14.  
Kiselev, A.A.  
**River ice, Ice conditions, Thermal regime, Runoff, Ice jams, USSR—Dvina River.**

34-4060

**Mathematical model of water infiltration into frozen soils.**  
Motovilov, I.U.G., *Soviet hydrology: selected papers*, 1978, 17(3), p.207-211, 9 refs. For Russian original see 32-4544.  
**Soil freezing, Frozen ground, Soil water migration, Frost penetration, Seepage, Surface water, Permeability, Ground ice, Ice formation, Mathematical models.**

34-4061

**Winter floods in Leningrad and their study by empirical and hydrodynamic methods.**  
Drabkin, V.V., et al. *Soviet hydrology: selected papers*, 1978, 17(4), p.246-249, 8 refs. Translated from Leningrad, Universitet, Vestnik, 1978, No.12, p.128-133.  
Pomeranets, K.S.  
**Floods, Ice conditions, Water level, Hydrodynamics, Statistical analysis, USSR—Leningrad.**

34-4062

**Winter flying package: 1. Ultimate winter enjoyment.**  
Mackie, D., et al. *Canadian aviation*, Dec. 1978, 51(12), p.22-25.  
Beluse, M.  
**Airplanes, Cold weather operation, Equipment, Logistics, Aircraft icing.**

34-4063

**Winter flying package: 2. Tips for flying in cold and snow.**  
Gallagher, J.D., *Canadian aviation*, Dec. 1978, 51(12), p.26-27.  
**Airplanes, Cold weather operation.**

34-4064

**Winter flying package: 3. Icing is for cakes, not carbs.**  
Bramson, A., *Canadian aviation*, Dec. 1978, 51(12), p.27-29.  
**Aircraft icing, Ice prevention, Cold weather operation.**

34-4065

**Influence of the choice of glide plane on the theory of the velocity of dislocations in ice.**  
Whitworth, R.W., *Philosophical magazine*, Apr. 1980, 41(4), p.521-528, 14 refs.  
**Ice physics, Ice crystals, Proton transport, Orientation, Velocity, Theories.**

34-4066

**Numerical solution of a parabolic free boundary problem via Newton's method.**  
Baumeister, J., et al. *Institute of Mathematics and its Applications. Journal*, Mar. 1980, 25(2), p.99-109, 9 refs.

Hoffmann, K.-H., Jochum, P.  
**Moisture, Ice water interface, Heat transfer, Stefan problem, Boundary value problems, Analysis (mathematics).**

34-4067

**Internal ducted propulsion system applicable to ice conditions.**  
Burnett, R.F., *Naval architect*, Mar. 1980, No.2, p.53-54.

**Icebreaker: Impact strength, Propellers, Sea ice, Ice conditions.**

34-4068

**Japanese develop Archimedean screw tractor.** *Ocean industry*, July 1980, 15(7), p.11.  
**Tractors, All terrain vehicles, Pack ice, Snow vehicles, Water, Propellers, Sands, Sea ice.**

34-4069

**Frost action on immature cement paste—microstructural features.**  
Kayyal, O.A., et al. *American Concrete Institute Journal*, July-Aug. 1980, No.4, p.264-268, 8 refs.  
Page, C.L., Ritchie, A.G.B.  
**Cement admixtures, Frost action, Microstructure, Freeze thaw tests, Compressive properties, Durability, Mechanical properties, Cracking (fracturing).**

34-4070

**Summer temperatures of cryosolic soils in the north-central Kewatin, N.W.T.**  
Tarnocai, C., *Canadian journal of soil science*, May 1980, 60(2), p.311-327, 18 refs. In English with French summary.

**Permafrost thermal properties, Soil temperature, Active layer, Seasonal freeze thaw, Slope orientation, Vegetation factors, Drainage, Topographic effects.**

34-4071

**Active and passive microwave response to snow parameters. 1. Wetness.**  
Stiles, W.H., et al. *Journal of geophysical research*, Feb. 20, 1980, 85(C2), p.1037-1044, 7 refs.  
Ulaby, F.T.

**Snow water content, Backscattering, Microwaves, Radar echoes, Diurnal variations, Temperature effects, Snow depth, Wet snow.**

34-4072

**Active passive microwave response to snow parameters. 2. Water equivalent of dry snow.**  
Ulaby, F.T., et al. *Journal of geophysical research*, Feb. 20, 1980, 85(C2), p.1045-1049, 8 refs.  
Stiles, W.H.

**Snow water equivalent, Microwaves, Backscattering, Soil water, Radar echoes, Temperature effects, Analysis (mathematics), Experimentation.**

34-4073

**Long-period gravity waves in ice-covered sea.**  
Bates, H.F., et al. *Journal of geophysical research*, Feb. 20, 1980, 85(C2), p.1095-1100, 18 refs.

Shapiro, L.H.  
**Ocean waves, Wave propagation, Floating ice, Ice sheets, Ice elasticity, Ice mechanics, Sea ice, Compressive properties, Mathematical models, Gravity waves.**

34-4074

**Permittivity of ice and water at millimeter wavelengths.**

Blair, M.D., *Journal of geophysical research*, Feb. 20, 1980, 85(C2), p.1101-1106, 7 refs.

**Ice optics, Water chemistry, Reflectivity, Dielectric properties, Wave propagation, Temperature effects.**

34-4075

**Summary of Great Lakes weather and ice conditions, winter 1977-78.**

Assel, R.A., et al. *U.S. National Oceanic and Atmospheric Administration. NOAA technical memorandum*, Dec. 1979, ERL GLERL-26, 123p., PB80-179 203, 10 refs.

Boyce, D.E., DeWill, B.H., Wartha, J., Keyes, F.A.  
**Lake ice, Ice formation, Ice conditions, Ice breakup, Meteorological data.**

34-4076

**The Haus-Tanaka model for the Ice VII-Ice VIII phase transition.**

Ho-Ting-Hun, J., et al. *Australian journal of physics*, Mar. 1980, 33(1), p.107-113, 17 refs.

Oitmaa, J.  
**Ice models, High pressure ice, Phase transformations.**

34-4077

**Snowplowable raised reflective pavement markers at hazardous locations in New Jersey.**

Graf, C.R., et al. *U.S. Federal Highway Administration. Division of Research and Development. Report*, Sep. 1979, FHWA/NJ-80/011-4668, 55p.

Roberts, A.W.  
**Markers, Pavements, Snow removal, Design, Cost analysis, Reflectivity.**

34-4078

**Alaska village demonstration projects.**  
Reid, B.H., *U.S. Environmental Protection Agency. Environmental Research Laboratory. Report*, Mar. 1980, EPA-600/3-80-039, 52p., 17 refs.

**Utilities, Water supply, Water treatment, Waste disposal, Health, Equipment, Cost analysis, Research projects.**

34-4079

**Fate and effects of crude oil spilled on subarctic permafrost terrain in interior Alaska.**

Johnson, L.A., et al. *U.S. Environmental Protection Agency. Environmental Research Laboratory. Report*, Mar. 1980, EPA-600/3-80-040, MP 1310, 128p., Refs. p.78-83.

Sparrow, E., Jenkins, T.F., Collins, C.M., Davenport, C.V., McFadden, T.

**Oil spills, Permafrost thermal properties, Environmental impact, Thermal regime, Subarctic regions, Seasonal variations, Experimentation.**

This study was conducted to determine both the short- and long-term effects of spills of hot Prudhoe Bay crude oil on permafrost terrain in subarctic interior Alaska. Two experimental oil spills of 7570 liters (2000 gallons) each on 500 sq m



test plots were made at a forest site underlain by permafrost near Fairbanks, Alaska. The oil spills, one in winter and one in summer, were conducted to evaluate their effect during these two seasonal extremes. Oil movement, thermal regime, botanical effects, microbiological responses, permafrost impact, and composition of the oil in the soil were monitored for two years.

# 34-4080

**Knik Glacier, Alaska, May 1979 monument and glacier survey.**

Trabant, D.C., et al. *U.S. Geological Survey - Open-file report*, 1979, 80-48, 20p. + 2 maps, 4 refs. Mayo, L.R.

**Glacier surveys, Glacier surfaces, Profiles, Glacial lakes, United States—Alaska—Knik Glacier, United States—Alaska—George, Lake.**

# 34-4081

**Snow and ice removal from pavement using stored earth energy.**

Long, D.C., et al. *U.S. Federal Highway Administration. Offices of Research and Development. Technology sharing report*, Feb. 1980, FHWA-TS-80-227, 72p.

Baldwin, J.S.

**Snow removal, Ice removal, Pavements, Heating, Heat pipes, Geothermal thawing.**

# 34-4082

**Recessed snowplowable markers.**

Niessner, C.W. *U.S. Federal Highway Administration. Offices of Research and Development. Technology sharing report*, Mar. 1980, FHWA-TS-80-225, 22p., 5 refs.

**Markers, Pavements, Snow removal, Visibility.**

# 34-4083

**Influence of the diffusion of vapor and heat on the morphology of ice crystals grown from the vapor.** Gonda, T. *Journal of crystal growth*, May 1980, 49(1), p.173-181, 15 refs.

**Ice crystal growth, Ice crystal structure, Vapor diffusion, Thermal diffusion, Thermal conductivity.**

# 34-4084

**Variations in altitudinal plant distribution with longitude (Polar Urals-Putorana-Verkhoian'e). (Izmeneniia vysotnogo raspredeleniia rastenii s dolgotoi (Pripoliarnyi Ural - Putorana - Verkhoian'e)).** Kuvaev, V.B. *Problemy botaniki*, 1979, 14(1), p.6-18, In Russian. 20 refs.

**Subarctic landscapes, Alpine landscapes, Plant ecology, Ecosystems.**

# 34-4085

**Periglacial flora of the Katunskiy Range. (Prilednikovaia flora Katunskogo khrebtai).** Polozhil, A.V., et al. *Problemy botaniki*, 1979, 14(1), p.18-23, In Russian. 8 refs.

Reviakina, N.V.

**Mountain glaciers, Periglacial processes, Alpine landscapes, Vegetation, Ecosystems, USSR—Altai Mountains.**

# 34-4086

**Basic characteristics of Alpine flora in North Koryakia. (Osnovnye cherty vysokogornoi flory Severnoi Koriakii).** Kharkevich, S.S., et al. *Problemy botaniki*, 1979, 14(1), p.33-42, In Russian. 13 refs.

Buch, T.G.

**Rock streams, Alpine landscapes, Plant ecology, Ecosystems, Bald peaks.**

# 34-4087

**Peculiarities of flora in the West Okhotsk Sea area. (Nekotorye osobennosti flory Zapadnogo Priokhot'ia).** Shlotgauer, S.D., *Problemy botaniki*, 1979, 14(1), p.42-47, In Russian. 17 refs.

**Landscape types, Plant ecology, Ecosystems, Altitude, Slope orientation, USSR—Far East.**

# 34-4088

**Alpine mosses of South Siberia. (Osnovnye cherty vysokogornykh moshkovykh flor Iuzhnoi Sibiri).** Bardunov, L.V., *Problemy botaniki*, 1979, 14(1), p.86-91, In Russian. 9 refs.

**Alpine landscapes, Plant ecology, Mosses, Ecosystems.**

# 34-4089

**Place of Alpine vegetation in the system of botanical-geographic mapping of high mountain regions. (O meste vysokogornoi rastitel'nosti v sisteme botaniko-geograficheskogo ratiionirovaniia gornykh stran).** Sokhadze, E.V., *Problemy botaniki*, 1979, 14(1), p.104-110, In Russian. 36 refs.

**Alpine landscapes, Landscape types, Vegetation, Mapping.**

# 34-4090

**Short review of vegetation in the Baykal-Patomskoe Nagor'ye highlands. (Kratkii ocherk rastitel'nosti tsentral'noi chasti Baikalo-Patomskogo nagor'ia).** Rusiaeva, G.G., *Problemy botaniki*, 1979, 14(1), p.110-117, In Russian. 17 refs.

**Mosses, Alpine landscapes, Lichens, Alpine tundra, Cryogenic soils, Vegetation, Bald peaks.**

# 34-4091

**Vegetational resources of Transbaikial, their preservation and use. (Rastitel'nye resursy Zabaikalia, ikh okhrana i ispol'zovanie).** Botkov, T.G., ed. Ulan-Ude, 1979, 97p. In Russian. For selected papers see 34-4092 through 34-4094. Refs. passim.

Efimov, M.V., ed. Kashin, V.K., ed. **Taiga, Swamps, Landscape types, Forest soils, Plant ecology, Ecosystems, Forestry, Environmental protection, USSR—Transbaikial.**

# 34-4092

**Seasonal dynamics of green biomass of the grass-shrub zone of typical plant communities on the northern slope of the Khamar-Daban Range. (Sezonnaia dinamika biologicheskoi produktivnosti zelenoi massy traviano-kustarnichkovogo iarusia tipichnykh soobshchestv severnogo sklonia Khamar-Dabanai).** Vasil'chenko, Z.A., *Rastitel'nye resursy Zabaikalia, ikh okhrana i ispol'zovanie (Vegetational resources of Transbaikial, their preservation and use)* edited by T.G. Botkov, M.V. Efimov and V.K. Kashin, Ulan-Ude, 1979, p.46-51, In Russian.

**Slope orientation, Vegetation patterns, Taiga, Biomass, Seasonal variations, USSR—Khamar Daban Range.**

# 34-4093

**Ecologic fundamentals of forestry in the Lake Baykal Basin. (Ekologicheskie osnovy vedeniia lesnogo khoziaistva v bassaine ozera Baikal).** Polikarpov, N.P., et al. *Rastitel'nye resursy Zabaikalia, ikh okhrana i ispol'zovanie (Vegetational resources of Transbaikial, their preservation and use)* edited by T.G. Botkov, M.V. Efimov and V.K. Kashin, Ulan-Ude, 1979, p.52-57, In Russian.

Babintseva, R.M., Cherednikova, I.S. **Forestry, Plant ecology, Taiga, Meadow soils, Forest soils, Cryogenic soils, Landscape types, Alpine landscapes, Alpine tundra.**

# 34-4094

**Forest fire protection in the northern Buryat ASSR. (Okhrana lesov ot pozharov na severe Buriatskoi ASSR).** Evdokimenko, M.D., *Rastitel'nye resursy Zabaikalia, ikh okhrana i ispol'zovanie (Vegetational resources of Transbaikial, their preservation and use)* edited by T.G. Botkov, M.V. Efimov and V.K. Kashin, Ulan-Ude, 1979, p.58-63, In Russian.

**Taiga, Environmental protection, Forest fires, Baykal Amur railroad.**

# 34-4095

**Hydromelioration of lands in the Buryat ASSR. (Vodnaia melioratsiia zemel' Buriatii).** Borisenko, I.M., ed. Ulan-Ude, 1979, 110p. In Russian. For selected papers see 34-4096 through 34-4100.

**Swamps, Permafrost distribution, Land reclamation, Drainage, Permafrost hydrology, Mapping, Water supply, Wells, Irrigation, Suprapermafrost ground water, Subpermafrost ground water, USSR—Transbaikial, USSR—Baykal Lake.**

# 34-4096

**Hydrogeologic-land reclamation regionalization of the Lake Baykal area and Western Transbaikial. (Gidrogeologo-meliorativnoe ratiionirovanie Pribaikalia i Zapadnogo Zabaikalia).** Borisenko, I.M., *Vodnaia melioratsiia zemel' Buriatii (Hydromelioration of lands in the Buryat ASSR)* edited by I.M. Borisenko, Ulan-Ude, 1979, p.5-15, In Russian. 11 refs.

**Land reclamation, Swamps, Permafrost distribution, Permafrost hydrology, Mapping, USSR—Transbaikial.**

# 34-4097

**Hydrogeologic and land reclamation conditions of the Khotay swamp in the Barguzin depression. (Gidrogeologo-meliorativnye uslovia Khotaiskogo massiva (Barguzinskaia vpadina)).** Zamana, L.V., *Vodnaia melioratsiia zemel' Buriatii (Hydromelioration of lands in the Buryat ASSR)* edited by I.M. Borisenko, Ulan-Ude, 1979, p.24-33, In Russian. 8 refs.

**Permafrost beneath rivers, Swamps, Drainage, Land reclamation, USSR—Barguzin River.**

# 34-4098

**Salinity of soils in the Tungus depression. (Zasolenost' zemel' Tunguskoii vpadiny).** Borisenko, I.V., et al. *Vodnaia melioratsiia zemel' Buriatii (Hydromelioration of lands in the Buryat ASSR)* edited by I.M. Borisenko, Ulan-Ude, 1979, p.34-41, In Russian. 3 refs.

Nikitseva, V.F.

**Saline soils, Cryogenic soils, Soil formation, Sporadic permafrost, Permafrost hydrology, Swamps.**

# 34-4099

**Geomorphologic conditions of land reclamation in the Upper Angara trough. (Geomorfologicheskie uslovia melioratsii zemel' Verkhne-Angarskoi kotloviny).** Bazarov, D.-D.B., et al. *Vodnaia melioratsiia zemel' Buriatii (Hydromelioration of lands in the Buryat ASSR)* edited by I.M. Borisenko, Ulan-Ude, 1979, p.77-93, In Russian.

**River basins, Plains, Alluvium, Permafrost distribution, Microrelief, Moraines, Thermokarst, Ground ice, Ice veins, Land reclamation.**

# 34-4100

**Recent exogenic processes in the southeastern Lake Baykal area and their influence on hydromeliorative construction. (Sovremennye ekzogennye protsessy Iugo-Vostochnogo Pribaikalia i ikh vlianie na gidromeliorativnoe stroitel'stvo).** Buzhinskii, A.E., *Vodnaia melioratsiia zemel' Buriatii (Hydromelioration of lands in the Buryat ASSR)* edited by I.M. Borisenko, Ulan-Ude, 1979, p.94-104.

**Geocryology, Slope processes, Cryogenic soils, Solifluction, Mudflows, Avalanches, Permafrost weathering.**

# 34-4101

**Regional geomorphology of newly developed areas. (Regionalnaia geomorfologiya ratiionov novogo osvoeniia).** Kibal'chich, O.A., et al. Moscow, 1979, 120p. In Russian. For selected papers see 34-4102 and 34-4103.

**Geomorphology, Slope processes, Permafrost distribution, Geocryology, Soil erosion, Cryogenic soils, Taiga, Baykal Amur railroad, Roads, Vegetation factors.**

# 34-4102

**Formation of accumulative relief of the Ogoronskaya Basin (eastern part of the Baykal Amur railroad) under permafrost conditions. (Formirovanie akumulativnogo rel'efa Ogoronskoi vpadiny (vostochnyi uchastok BAM'a) v usloviakh vechnoi merzloty).** Kopylov, I.F., et al. *Regionalnaia geomorfologiya ratiionov novogo osvoeniia (Regional geomorphology of newly developed areas)* edited by O.A. Kibal'chich, Moscow, 1979, p.9-14, In Russian. 10 refs.

**Site surveys, Geocryology, Permafrost structure, Polygonal topography, Thermokarst, Nalds, Slope processes, Solifluction, Baykal Amur railroad.**

# 34-4103

**Slope development dynamics in the Zeya-Bureya Plain. (Dinamika razvitiia sklonov Zetsko-Bureinskoi ravniny).** Popov, I.I., *Regionalnaia geomorfologiya ratiionov novogo osvoeniia (Regional geomorphology of newly developed areas)* edited by O.A. Kibal'chich, Moscow, 1979, p.15-20, In Russian. 7 refs.

**Plains, Geocryology, Slope processes, Ground ice, Soil erosion, Solifluction, USSR—Zeya River, USSR—Bureya River.**

# 34-4104

**Temporary recommendations for the design and construction of situ-cast bored piles in permafrost. (Vremennnye rekomendatsii po proektirovaniu i ustroistvu buronabivnykh sval v vechnomerzlykh gruntakh).** Gaidenko, E.I., Yakutsk, 1979, 34p. In Russian with English table of contents enclosed.

**Foundations, Supports, Piles, Permafrost.**

# 34-4105

**Selecting rolling cutter bits and drilling regimes for perennially frozen boulder-gravel placers. (Vybor tipa sharoshechnogo dolota i parametrov rezhima bureniia valunno-galechnykh vechnomerzlykh rossypel).** Bragin, P.A., *Aktual'nye problemy razrabotki mestorozhdenii tverdykh poleznykh iskopaemykh (Problems in mining hard ore deposits)* edited by N.V. Mel'nikov, Moscow, 1979, p.110-123, In Russian.

**Placer mining, Drilling, Drills, Permafrost, Sands, Gravel.**

34-4106

**Environmental protection in Yakutia.** (Okhrana prirody IAKutii). Andreev, V.N., ed. Yakutsk, SO AN SSSR, 1979, 181p. In Russian. For selected papers see 34-4107 through 34-4112. Refs. passim.

Shcherbakov, I.P., ed.  
**Tundra, Tracked vehicles, Soil erosion, Environmental protection, Thermokarst lakes, Alassy, Forest fires, Taiga, Forest tundra, Alpine tundra, Tailings, Vegetation.**

34-4107

**Rational use of natural resources in the Central Lena River area.** (O ratsional'nom ispol'zovanii estestvennykh resursov Srednego Prilen'ia). Gubkin, M.P., et al. Okhrana prirody IAKutii (Environmental protection in Yakutia) edited by V.N. Andreev and I.P. Shcherbakov, Yakutsk, SO AN SSSR, 1979, p.10-14. In Russian.

Zagladov, V.P.  
**Environmental protection, Mining, Construction materials, Forestry, Roads, Construction equipment, Cryogenic soils, Soil erosion, Permafrost depth, Ground ice.**

34-4108

**Botanical objects of environmental protection near the lower Lena River.** (Botanicheskie ob'ekty v nizov'e reki Leny podlezhashchie okhrane). Trufanova, E.R., Okhrana prirody IAKutii (Environmental protection in Yakutia) edited by V.N. Andreev and I.P. Shcherbakov, Yakutsk, SO AN SSSR, 1979, p.20-23. In Russian. 4 refs.

**Taiga, Mountain soils, Cryogenic soils, Vegetation, Environmental protection, Alpine tundra, Landscape types, Plant ecology, Ecosystems, USSR—Lena River.**

34-4109

**Influence of tracked vehicles on tundra.** (Vliianie gusenichnykh transporterov na tundru). Andreev, V.N., et al. Okhrana prirody IAKutii (Environmental protection in Yakutia) edited by V.N. Andreev and I.P. Shcherbakov, Yakutsk, SO AN SSSR, 1979, p.42-47. In Russian.

Perfil'eva, V.I.  
**Tundra, Transportation, Tracked vehicles, Soil erosion, Vegetation, Environmental protection.**

34-4110

**Development of vegetation at the bottom of drained thermokarst lakes in subarctic tundra.** (Razvitiye rastitel'nosti na dne spushtennykh termokarstovykh ozer v subarkticheskoi tundre). Galaktionova, T.F., Okhrana prirody IAKutii (Environmental protection in Yakutia) edited by V.N. Andreev and I.P. Shcherbakov, Yakutsk, SO AN SSSR, 1979, p.48-50. In Russian. 6 refs.

**Tundra, Thermokarst lakes, Alassy, Vegetation.**

34-4111

**Natural overgrowth of earth dumps along irrigation channels in Central Yakutia.** (Estestvennoe zarastanie otvalov orositel'nykh kanalov v Tsentral'noi IAKutii). Nakhabiseva, S.F., Okhrana prirody IAKutii (Environmental protection in Yakutia) edited by V.N. Andreev and I.P. Shcherbakov, Yakutsk, SO AN SSSR, 1979, p.51-54. In Russian.

**Irrigation, Channels (waterways), Earthwork, Tailings, Vegetation.**

34-4112

**Reaction of different landscapes to heat producing phenomena in the Oymyakon region.** (Reaktsiia razlichnykh landshaftov na pirogennye iavleniia v Oim'yakonskom raiione).

Amuzinskaia, T.P., Okhrana prirody IAKutii (Environmental protection in Yakutia) edited by V.N. Andreev and I.P. Shcherbakov, Yakutsk, SO AN SSSR, 1979, p.55-56. In Russian. 2 refs.

**Forest fires, Landscape types, Taiga, Forest tundra, Alpine tundra, Cryogenic soils, Vegetation.**

34-4113

**Physiography and glacial geomorphology of the central Black Coast, Palmer Land.** Singleton, D.G., *British Antarctic Survey. Bulletin*, Jan. 1980, No.49, p.21-32, 25 refs.

**Glacial geology, Patterned ground, Cirques, Glacier ice, Antarctica—Black Coast.**

The physiography and glacial geomorphology of the central Black Coast, Palmer Land, are described. Weathering processes are discussed in relation to the widespread disintegration of the bedrock. A comprehensive account of differentially eroded forms is given, and some evidence is put forward supporting theories as to the origin and development of cavernous weathering. Some small-scale patterned ground features are recorded with suggested processes of formation in the antarctic environment. The occurrence of ubiquitous glacial erratics and three supraglacial moraines is noted. (Auth.)

34-4114

**Physiography of part of north-eastern Palmer Land.** Anckorn, J.F., *British Antarctic Survey. Bulletin*, Jan. 1980, No.49, p.157-166, 11 refs.

**Geologic structures, Topographic features, Ice cover, Antarctica—Palmer Land.**

The physiography and glaciation of part of northeastern Palmer Land are described and the controls affecting these factors are discussed. In particular, the striking differences between the respective topographies of Graham and Palmer Lands are noted, and evidence for the recession of the Palmer Land ice cap is presented. (Auth.)

34-4115

**Analyses of British Antarctic Survey tidal records.** Cartwright, D.E., *British Antarctic Survey. Bulletin*, Jan. 1980, No.49, p.167-179, 11 refs.

**Sea ice, Drift, Tides, Antarctica—Argentine Islands, Antarctica—George VI Sound.**

The results of tidal analysis of 9 years of sea level records from the Argentine Islands and short records of ice movement from lake sites in George VI Sound are presented. Diurnal tides are normal throughout, but the semi-diurnals show a sharply tuned anti-resonance, most noticeably affecting M2. The Argentine Islands have the unusual property that their tides can nearly vanish near May 2 and Nov. 2. Tidal amplitude of sea level there is significantly lower than that of ice movement recorded in 1935. Tidal ice movement in George VI Sound appears to be quite variable in amplitude and phase. The most reliable and consistent ice record was from Ablation Lake, whose results are similar to those from older ice records at Barry Island in Marguerite Bay. Comparison of Ablation Lake with another site 60 km to the southeast shows that tidal phases increase southward in George VI Sound. (Auth.)

34-4116

**Control of radiation-thermal balance, the basis of environmental protection in permafrost areas.** (Upravlenie radiatsionno-teplovym balansom - osnova okhrany prirody v oblasti vechnoi merzloty). Kudriavtsev, V.A., *Merzlotnye issledovaniia*, 1980, Vol.19, p.3-6. In Russian.

**Permafrost control, Environmental protection, Radiation balance, Heat balance, Permafrost thermal properties.**

34-4117

**Evaluating snow cover effect on the temperature field of seasonally frozen rocks.** (Otsenka vliianiia snezhnogo pokrova na temperaturnoe pole sezonnomerzlykh gornykh porod). Melamed, V.G., et al. *Merzlotnye issledovaniia*, 1980, Vol.19, p.7-25. In Russian. 12 refs.

**Frozen rock temperature, Seasonal freeze thaw, Snow cover effect, Analysis (mathematics).**

34-4118

**Rapid way of finding temperature shift in homogeneous seasonally and perennially frozen strata.** (Express-metod nakhozhdeniia temperaturnoi sdvizhki v odnorodnykh tolshchakh sezonno- i mnogoletnemrzhlykh gornykh porod). Melamed, V.G., et al. *Merzlotnye issledovaniia*, 1980, Vol.19, p.26-34. In Russian. 7 refs.

**Frozen rock temperature, Seasonal freeze thaw, Permafrost thermal properties, Soil air interface, Heat transfer, Stefan problem.**

34-4119

**Quantitative investigation of heat-mass transfer in rocks during phase transformations.** (Kolichestvennoe issledovanie teplo- i massoobmena v gornykh porodakh pri fazovykh perekhodakh). Melamed, V.G., *Merzlotnye issledovaniia*, 1980, Vol.19, p.35-40.

**Frozen rock temperature, Frost penetration, Soil water migration, Heat transfer, Mass transfer, Phase transformations, Mathematical models, Stefan problem.**

34-4120

**Methods of geocryological forecasting and the general geocryological bases for their application.** (Metody geokriologicheskogo prognoza i obshchegeokriologicheskaiia osnova ikh primeneniia). Maksimova, L.N., *Merzlotnye issledovaniia*, 1980, Vol.19, p.41-52. In Russian. 12 refs.

**Geocryology, Forecasting, Aerial surveys, Spaceborne photography, Models, Laboratory techniques, Mathematical models.**

34-4121

**Indices used in evaluating the stability of permafrost areas to variations in natural conditions and consequences of human activities in permafrost areas.** (Priznaki otsenki ustoiichivosti territorii k izmeneniam prirodnykh faktorov i tekhnogennym vozdeistviyam v oblasti vechnoi merzloty).

Garagulia, L.S., et al. *Merzlotnye issledovaniia*, 1980, Vol.19, p.53-58. In Russian. 6 refs.

Parmuzin, S.IU.  
**Geocryology, Forecasting, Environmental protection, Human factors, Permafrost control, Permafrost beneath structures.**

34-4122

**Quantitative evaluation of heaving intensity in thawing water-saturated grounds.** (Metodika kolichestvennoi otsenki velichiny pucheniia ottaivaushchikh vlagonasyshchennykh gruntov).

Ershov, E.D., et al. *Merzlotnye issledovaniia*, 1980, Vol.19, p.59-66. In Russian. 9 refs.

Lebedenko, I.U.P., Petrov, V.S.  
**Ground thawing, Ground ice, Soil water migration, Deformation, Settlement (structural), Analysis (mathematics).**

34-4123

**Methods of studying frozen rock properties during geocryological surveying.** (K metodike izucheniia svolsiv merzlykh gornykh porod pri merzlotnoi s'emke).

Trush, N.I., *Merzlotnye issledovaniia*, 1980, Vol.19, p.67-75. In Russian. 15 refs.

**Geocryology, Surveys Frozen rock temperature, Permafrost distribution, Permafrost structure, Active layer, Permafrost weathering, Permafrost depth, Permafrost physics, Mapping.**

34-4124

**Permafrost conditions of Franz Josef Land.** (Merzlotnye uslovia zemli Frantsa-Iosifa). Kondrat'eva, K.A., *Merzlotnye issledovaniia*, 1980, Vol.19, p.76-101. In Russian. 27 refs.

**Permafrost distribution, Permafrost depth, Permafrost thickness, Glacier ice, Snow cover distribution, Frozen rock temperature, USSR—Franz Josef Land.**

34-4125

**History of permafrost development on Kamchatka Peninsula.** (Istoriia razvitiia mnogoletnemrzhlykh porod Kamchatki). Zamolotchikova, S.A., *Merzlotnye issledovaniia*, 1980, Vol.19, p.102-110. In Russian. 20 refs.

**Permafrost origin, Permafrost distribution, Permafrost structure, Geologic structures, Geologic history, USSR—Kamchatka Peninsula.**

34-4126

**Special geocryologic-engineering-geologic regionalization of coal mining areas in South Yakutia.** (Opyt spetsial'nogo merzlotno-inzhenerno-geologicheskogo raiionirovaniia ugol'nykh mestorozhdenii Iuzhnoi IAKutii).

Kozlov, A.N., et al. *Merzlotnye issledovaniia*, 1980, Vol.19, p.111-115. In Russian. 4 refs.

**Mining, Coal, Permafrost beneath structures, Surveys, Mapping, Construction, USSR—Yakutia.**

34-4127

**Principles of engineering-geological regionalization of permafrost zone for construction of hydroelectric power plants.** (Printsipy inzhenerno-geologicheskogo raiionirovaniia zony mnogoletnei merzloty dlia gidroenergeticheskogo stroitel'stva).

Krivonogov, M.G., *Merzlotnye issledovaniia*, 1980, Vol.19, p.116-119. In Russian.

**Engineering geology, Surveys, Permafrost beneath structures, Earth dams, Permafrost structure, Foundations.**

34-4128

**Zonal and regional peculiarities of geocryological conditions in the southern part of the permafrost distribution area.** (Zonal'nye i regional'nye osobennosti geokriologicheskikh uslovii v iuzhnoi chasti oblasti rasprostraneniia MMP).

Belopukhova, E.B., et al. *Merzlotnye issledovaniia*, 1980, Vol.19, p.120-126. In Russian. 9 refs.

Sukhodol'skaia, L.A.  
**Geocryology, Permafrost distribution, Permafrost structure, Forest land, Swamps, Peat.**

- 34-4129**  
Amount of geocryologic information obtained from local space photographs under the conditions of Aldan-Stanovoy region. [Geotekhnologicheskaya informatsiya lokalnykh kosmicheskikh snimkov (primenitel'no k usloviyam Aldan-Stanovogo regiona)]. Gavrilov, A.V., *Merzlotnye issledovaniya*, 1980, Vol. 19, p.127-137, In Russian. 8 refs.  
Spaceborne photography, Geocryology, USSR—Stanovoy Range, USSR—Aldan.
- 34-4130**  
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Korostelev, G.V.  
Alpine landscapes, Rock streams, Permafrost hydrology, Ground ice, Baykal Amur railroad, USSR—Transbaikial.
- 34-4131**  
Direct-current electrical prospecting methods used in solving geocryologic-hydrogeologic problems in the Baykal Amur railroad area. (Primenenie metodov elektromagnitnoy razvedki pri razvedke i ispytaniyakh merzlotno-gidrogeologicheskikh issledovaniy v zone osvoeniya trassy BAM). Bolikov, S.A., et al., *Merzlotnye issledovaniya*, 1980, Vol. 19, p.145-153, In Russian. 3 refs.  
Romanovskii, V.E.  
Site surveys, Geocryology, Baykal Amur railroad, Hydrogeology, Permafrost hydrology, Electromagnetic prospecting.
- 34-4132**  
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Afanasev, V.E.  
Permafrost distribution, Hot springs, Permafrost hydrology, Taliks, Baykal Amur railroad.
- 34-4133**  
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Shur, I.L.  
Geocryology, Frozen fines, Clays, Frost penetration, Soil water migration, Phase transformations, Cryogenic structures, Cryogenic textures.
- 34-4134**  
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Zharov, A.A., Nikolaev, A.A., Emelianova, L.V.  
Frozen fines, Sands, Loams, Adhesion, Materials, Wood, Rocks, Concretes.
- 34-4135**  
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Frozen fines, Sands, Density (mass/volume), Thermal conductivity, Soil water, Phase transformations.
- 34-4136**  
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Kozlov, A.G.  
Frozen fines, Mechanical properties, Seasonal freeze-thaw, Active layer.
- 34-4137**  
Drilling fluids for West Siberian fields. (Buroye maslo dlya mestorozhdeniy Zapadnoi Sibiri). Kaz'min, A.V., et al., *Neftnaya khoziaistvo*, Nov. 1979, No. 11, p.52-53, In Russian. 2 refs.  
Petroleum industry, Drilling, Drills, Drilling fluids, Permafrost.
- 34-4138**  
Planning environmental protection during the development of uninhabited areas. (Proektirovaniye meroptimirovaniye okruzhayemykh prirodozashchitnykh territoriy). Kukuevskii, G.M., et al., *Neftnaya khoziaistvo*, Dec. 1979, No. 12, p.50-53, In Russian.  
Markarov, S.G.  
Subarctic landscapes, Environmental protection, Petroleum industry, Transportation, Permafrost beneath structures, Permafrost control, Foundations, Tundra, Soil erosion, Vegetation factors.
- 34-4139**  
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Alpine landscapes, Deserts, Alpine glaciation, Glacier ice, Ice surveys, Aerial surveys, USSR—Pamirs.
- 34-4140**  
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Hydraulic structures, Dams, Concrete structures, Concrete placing, Winter concreting, Concrete freezing, Temperature distribution.
- 34-4141**  
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Berezovskii, A.A.  
Ice physics, Impact strength, Ice deformation, Analysis (mathematics).
- 34-4142**  
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- 34-4180**  
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Gravimetric prospecting, Gravity, Ice sheets, Antarctica—Vostok Station.  
Gravity connections to Vostok have been made through two routes, one from Mirnyy and the other from McMurdo. These ties are of general interest for gravimetric studies in Antarctica, because they provide a direct airborne link between the stations upon which two major gravitational networks (American and Soviet) are based. These ties are examined in some detail. (Auth.)
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Continental shelf deposits recently cored in the Weddell Sea, Ross Sea, and the George V region of Antarctica show three types of sediment. Type 1 sediments are massive, poorly sorted, and texturally and mineralogically homogeneous downcore; they are unfossiliferous or contain reworked fossils, lack a preferred pebble orientation, and are overcompacted. They are interpreted as being basal tills. Type 2 sediments are crudely stratified, contain a sorted mud fraction, are texturally and mineralogically heterogeneous downcore, contain distinctive microfossil assemblages, are typically normally compacted, and have a horizontal pebble fabric. Type 3 sediments are similar to Type 2 sediments except that they are depleted in silt and clay and contain a moderately sorted sand fraction. Both Type 2 and Type 3 sediments are deposited from floating ice and reflect the action of marine currents. Distributions of these deposits on the antarctic continental shelf can be related to former glaciologic and marine conditions. (Auth. mod.)
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Snow melting, Snow erosion, Channels (waterways), Meltwater, South Shetland Islands.  
This paper re-examines the geomorphological role of meltwater derived from snow patches in the light of observations made during the break up of snow cover on Byers Peninsula in 1976. The object is to draw attention to the erosive capacity of snow melt and the fact that channels created by this action can show similar morphological characteristics to those commonly ascribed to a fluvio-glacial origin. These include the crossing of local topographic divides and commencement in the middle of slopes. (Auth.)
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- 34-4194**  
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Sea ice, Ice strength, Flexural strength, Tensile properties, Compressive properties, Brines, Tests.
- 34-4195**  
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Brierley, W.H.  
Ice removal, Hydraulic jets, Concrete durability, Tests.
- 34-4196**  
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For Pt.1 see 34-1740.  
Uyeda, H.  
Snowflakes, Particle size distribution, Precipitation gages, Radar echoes, Snowfall.
- 34-4197**  
Measurement of the fall velocity of snowflakes in Nagaoka and its application to the Z-R relation. Uyeda, H., et al. *Japan. National Research Center for Disaster Prevention. Report*, Mar. 1980, No.23, p.39-46, In Japanese with English summary. 9 refs.  
Yagi, T.  
Snowflakes, Velocity, Radar echoes, Snowfall, Particle size distribution, Precipitation gages.
- 34-4198**  
Workshop on Environmental Protection of Permafrost Terrain. Brown, J., et al. *Northern engineer*, Summer 1980, 12(2), MP 1314, p.30-36, 8 refs.  
Hemming, J.E.  
Permafrost preservation, Environmental protection, Meetings, Thermal effects, Soil erosion, Route surveys, Site surveys, Design criteria.
- 34-4199**  
Estimating water equivalent snow depth from related meteorological variables. Steyaert, L.T., et al. *U.S. Nuclear Regulatory Commission. Report*, May 1980, NUREG/CR-1389, 39p., 18 refs.  
LeDuc, S.K., Strommen, N.D., Nicodemus, M.L., Guttman, N.B.  
Snow water equivalent, Snow depth, Snow loads, Meteorological data, Models.
- 34-4200**  
Removal of volatile trace organics from wastewater by overland flow land treatment. Jenkins, T.F., et al. *Journal of environmental science and health: Part A. Environmental science and engineering*, 1980, A15(3), MP 1313, p.211-224, 14 refs.  
Leggett, D.C., Martel, C.J.  
Waste treatment, Water treatment, Waste disposal, Vaporizing.  
A prototype overland flow land treatment system was studied to determine its effectiveness in reducing the levels of volatile trace organics in municipal wastewater. Chlorinated primary wastewater, water collected from the surface at various points downslope and runoff were analyzed by GC/MS, using a purge and trap sampler. Results indicated that efficient removal of a number of volatile substances including chloroform and toluene can be achieved by this method of treatment. Loss of these substances was found to follow first order kinetics. The observed behavior is consistent with a volatilization process.

## 34-4201

**Proceedings of the 36th annual meeting.** Eastern Snow Conference, Alexandria Bay, New York, 1979, 149p., Refs. passim. For individual papers see 34-4202 through 34-4212.

**Snow surveys, Meetings, Snow strength, Snow storms, Snow water equivalent, Snow hydrology.**

## 34-4202

**Vegetation-snow relationships in Labrador.** Adams, W.P., et al. Eastern Snow Conference, 36th. Proceedings, Alexandria Bay, New York, 1979, p.1-25, 18 refs.

**Snow cover effect, Vegetation, Snow depth, Snow density, Snow water equivalent, Tundra, Mapping.**

## 34-4203

**Estimating water equivalent depth from related meteorological variables.**

Stoyan, L.F., et al. Eastern Snow Conference, 36th. Proceedings, Alexandria Bay, New York, 1979, p.26-39, 11 refs.

**Snow cover effect, Vegetation, Snow depth, Snow density, Snow water equivalent, Tundra, Mapping.**

**Snow water equivalent, Snow loads, Precipitation (meteorology), Wind factors, Temperature effects, Models.**

## 34-4204

**Square-grid spatial interpolation of snow cover for a hydrometeorological information system.**

Thompson, R.M., et al. Eastern Snow Conference, 36th. Proceedings, Alexandria Bay, New York, 1979, p.40-52, 12 refs.

**Snow cover distribution, Watersheds, Snow hydrology, Mapping.**

## 34-4205

**Some factors affecting spring snowmelt within Narrows Mountain Brook basin, a forested watershed in central New Brunswick.**

Gordon, J.M., Eastern Snow Conference, 36th. Proceedings, Alexandria Bay, New York, 1979, p.53-67, 13 refs.

**Snowmelt, Watersheds, Radiation balance, Thermodynamics, Meteorological factors, Seasonal variations, Statistical analysis.**

## 34-4206

**Snowmelt runoff forecasting using state estimation techniques.**

O'Hayre, A.P., Eastern Snow Conference, 36th. Proceedings, Alexandria Bay, New York, 1979, p.68-74, 20 refs.

**Snowmelt, Runoff forecasting, Models.**

## 34-4207

**Mean 700 mb circulation patterns associated with the snowiest and least snowy winter months over the eastern United States.**

Wagner, A.J., Eastern Snow Conference, 36th. Proceedings, Alexandria Bay, New York, 1979, p.75-94, 16 refs.

**Snowfall, Temperature effects, Atmospheric circulation, Meteorological factors, Winter, Snow depth, Maps.**

## 34-4208

**Breakup of streams in the Canadian high Arctic.**

Woo, M., Eastern Snow Conference, 36th. Proceedings, Alexandria Bay, New York, 1979, p.95-107, 6 refs.

**Ice breakup, Streams, Runoff, Snow depth, Snowmelt, Radiation balance, Computer applications, Meteorological charts.**

## 34-4209

**Ultrasound low power sonar for snow thickness measurements.**

Cailliet, A., et al. Eastern Snow Conference, 36th. Proceedings, Alexandria Bay, New York, 1979, p.108-116, 2 refs.

**Snow depth, Snow acoustics, Acoustic measurement, Experimentation.**

## 34-4210

**Snow studies associated with the sideways move of DYE-3.**

Tobiasson, W., MP 1312, Eastern Snow Conference, 36th. Proceedings, Alexandria Bay, New York, 1979, p.117-124, 4 refs.

**Snow strength, Bearing strength, Foundations, Stresses, Snow cover stability, Snow surveys.**

In 1977, DEW Line station DYE-3 on the Greenland Ice Cap was moved sideways 210 ft (64 m) onto a new undistorted foundation. When this life extension concept was proposed, abrupt failure of the supporting snow was a major concern. Snow samples were obtained and strength tested at CRREL to determine the chance of an abrupt failure of the supporting

snow. Model studies were also performed to determine the bearing capacity of the snow, and predictions were made of foundation settlement during the move. The results indicated that the move could be accomplished safely.

## 34-4211

**Climatology of freezing rain in the Montreal area.** Leech, M.E., Eastern Snow Conference, 36th. Proceedings, Alexandria Bay, New York, 1979, p.125-140, 33 refs.

**Freezing, Rain, Climatology, Ice storms, Meteorological data, Glaze, Temperature effects, Icing, Ice accretion.**

## 34-4212

**Results of Snow Survey Schedule Committee Questionnaire.**

Hansen, P.L., et al. Eastern Snow Conference, 36th. Proceedings, Alexandria Bay, New York, 1979, p.141-147, 1 ref.

**Snow surveys, Meetings.**

## 34-4213

**Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers. (Tezisy dokladov).**

Symposium Biologicheskije problemy Severa, 8th, Apatity, 1979, Apatity, 1979, 177p., In Russian. For selected abstracts see 34-4214 through 34-4242.

**Economic development, Human factors, Environmental protection, Forest fires, Polar regions, Cryogenic soils, Vegetation, Tundra, Forest tundra, Taiga, Landscape types.**

## 34-4214

**Economic development and environmental protection in the Far North. (Osvoenie Kralnego Severa i okhrana ego prirody).**

Kriuchkov, V.V., et al. Simpozium Biologicheskije problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.3-4, In Russian.

**Economic development, Permafrost distribution, Permafrost structure, Human factors, Environmental protection.**

## 34-4215

**Plant introduction and landscape gardening in the Far North. (Problemy introduksii rastenij i zelenogo stroitel'stva na Kralnem Severe).**

Andreev, G.N., et al. Simpozium Biologicheskije problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.6-8, In Russian.

**Arctic landscapes, Introduced plants, Plant ecology, Frost resistance, Urban planning.**

## 34-4216

**Paludification of land in the North European USSR. (Zabolachivanie sushi na Evropejskom Severe SSSR).**

Piavchenko, N.I., Simpozium Biologicheskije problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.9-11, In Russian.

**Permafrost structure, Permafrost hydrology, Paludification, Swamps, Peat, Mosses, Forest tundra.**

## 34-4217

**Changes in Subarctic and boreal highlands vegetation due to human activities. (Antropogennye izmeneniia rastitel'nogo mira subarkticheskikh i boreal'nykh vysokogorij).**

Gorchakovskij, P.L., Simpozium Biologicheskije problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.12-13, In Russian.

**Subarctic landscapes, Human factors, Environmental protection, Tundra, Forest tundra, Taiga, Swamps.**

## 34-4218

**"Arctic" problems in the biology of the White Sea. ("Arkticheskie" problemy biologii Belogo moria).**

Khlebovich, V.V., Simpozium Biologicheskije problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.13-15, In Russian.

**Marine biology, Cryobiology, Plant ecology, Ice cover effect, USSR—White Sea.**

## 34-4219

**Hepaticae—pioneers in matting disturbed Yamal tundra soils. (Pechenochnye mkhi kak pionery zaderzheniya pervichnogo substrata v tundrach IAmala).**

Andreeva, E.N., Simpozium Biologicheskije problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.21-22, In Russian.

**Tundra, Geocryology, Soil erosion, Revegetation, Mosses.**

## 34-4220

**Tracked vehicle effect on subarctic tundra vegetation. (Vlienie dvizheniya guseichnogo transporta na rastitel'nost' subarkticheskoi tundry).**

Andreev, V.N., et al. Simpozium Biologicheskije problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.22-24, In Russian.

**Tundra, Tracked vehicles, Soil erosion, Protective vegetation, Mosses, Lichens.**

## 34-4221

**Regularities governing plant distribution with respect to snow cover in the southeastern Chukotskiy Peninsula. (Nekotorye zakonomernosti raspredeleniya rastitel'nosti v zavisimosti ot snezhnogo pokrova na jugovostochnom Chukotskom poluostrove).**

Balandin, S.A., et al. Simpozium Biologicheskije problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.24-25, In Russian.

**Vegetation patterns, Tundra, Plant ecology, Ecosystems, Snow cover effect, Subarctic landscapes, USSR—Chukotskiy Peninsula.**

## 34-4222

**Enrichment of cultivated tundra meadow grasses with wild legumes. (Obogashenie travostoia sel'nykh lugov v tundre dikorastushimi bobovymi).**

Kotelina, N.S., et al. Simpozium Biologicheskije problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.37-38, In Russian.

**Tundra, Meadow soils, Cryogenic soils, Vegetation.**

## 34-4223

**Zonal distribution of Hepaticae in the Khibiny Mountains. (Raspredelenie vidov pechenochnikov po pojasam v Khibinakh).**

Konstantinova, N.A., Simpozium Biologicheskije problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.38-39, In Russian.

**Alpine tundra, Plant ecology, Mosses, Forest tundra, Forest land, Alpine landscapes.**

## 34-4224

**Changes in ecosystems of northern Kola Peninsula due to human activities. (Izmenenie ekosistem Kolskogo severa pod vliyaniem antropogennoi deiatelnosti).**

Kriuchkov, V.V., et al. Simpozium Biologicheskije problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.39-42, In Russian.

**Human factors, Plant ecology, Ecosystems, Arctic landscapes, Environmental protection, Mining, USSR—Kola Peninsula.**

## 34-4225

**Natural reestablishment of vegetational cover in Central Yakutia. (Estestvennoe vosstanovlenie rastitel'nogo pokrova v tsentral'noi Yakutii).**

Nakhbiseva, S.F., Simpozium Biologicheskije problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.48-49, In Russian.

**Permafrost distribution, Landscape types, Soil erosion, Revegetation, USSR—Yakutia.**

34-4226

**Types of East Taymyr tundras and their significance as cattle grazing grounds.** (O tipakh tundr Vostochnogo Taymyra i ikh pastbishchnom znachenii dlia ovtsebykovi). Rapota, V.V., Simpozium Biologicheskije problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.53-54. In Russian. **Tundra, Landscape types, Cryogenic soils, Soil erosion, Revegetation, Grazing.**

34-4227

**Changes in vegetational cover of Yamal arctic tundras induced by reindeer grazing.** (Izmenenie rastitel'nogo pokrova pod vlianiem vypasa oleni v gipokarticheskih tundrach (Amalaj). Rebristaia, O.V., Simpozium Biologicheskije problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.55-56. In Russian. **Tundra, Landscape types, Cryogenic soils, Soil erosion, Revegetation, Grazing.**

34-4228

**Pollination ecology of Alpine tundra plants on the Kolyma Highlands.** (Ekologiya opyleniya rastenii gor'noi tundry Kolym'skogo nagor'ia). Tikhmenev, E.A., Simpozium Biologicheskije problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.57-58. In Russian. **Alpine tundra, Cryogenic soils, Plant ecology, Plant physiology.**

34-4229

**Studying disturbed soils of reindeer grazing fields in the Messoyakha-Noril'sk pipeline area.** (Metod izucheniia narushennykh olen'ikh pastbishch v ratone gazoprovoda Messoiakha-Noril'sk). Shchelkunova, R.P., et al. Simpozium Biologicheskije problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.66-67. In Russian. Savchenko, I.V. **Cryogenic soils, Soil erosion, Tracked vehicles, Revegetation, Tundra.**

34-4230

**Relation between light requirements and pigmentation of tundra plants on Wrangel Island.** (O sodержanii pigmentov u rastenii tundry ostrova Vrangeliia v svyazi s ikh svetolubiem). Aleksandrova, N.M., et al. Simpozium Biologicheskije problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.70-71. In Russian. Gerasimenko, T.V., Popova, I.A., Zalskii, O.V. **Photosynthesis, Plant physiology, Solar radiation, Arctic landscapes, Tundra.**

34-4231

**Respiration of Subarctic plants.** (Dykhatel'naia sposobnost' rastenii Subarktiki). Govorov, P.M., et al. Simpozium Biologicheskije problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.74-75. In Russian. Torgovkina, E.E. **Plant physiology, Transpiration, Subarctic landscapes, Tundra, Cryogenic soils.**

34-4232

**Study of Arctic plant respiration.** (Issledovanie dykhanii Arkticheskikh rastenii). Ivanova, T.I., et al. Simpozium Biologicheskije problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.77-78. In Russian. Semikhatova, O.A. **Plant physiology, Transpiration, Arctic landscapes, Tundra, Cryogenic soils.**

34-4233

**Specifics of photosynthesis and photosynthetic metabolism in Arctic plants.** (Spetsifika fotosinteza i fotosinteticheskogo metabolizma rastenii Arktiki). Mokronosov, A.T., et al. Simpozium Biologicheskije problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.85-86. In Russian. Nazarov, S.K., P'iankov, V.I. **Plant physiology, Photosynthesis, Arctic landscapes, Tundra.**

34-4234

**Low temperature effect on lipid exchange in trees and grasses and phase transformations in membranes.** (O vlianii nizkikh temperatur na lipidnyi obmen v drevnykh i travianistykh rasteniiakh i fazovye perekhody v membranakh). Rodionov, V.S., Simpozium Biologicheskije problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.91-92. In Russian. **Introduced plants, Frost resistance, Plant ecology, Plant physiology.**

34-4235

**Accelerated growing of pine seedlings introduced beyond the polar circle.** (Uskorennoe vyrashchivanie seiantsev khvoynykh introdutsentov v Zapoliar'e). Daiaasova, N.P., et al. Simpozium Biologicheskije problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.107-108. In Russian. Zaitseva, A.F., Kazakov, L.A. **Forest land, Swamps, Peat, Introduced plants, Plant ecology, Frost resistance.**

34-4236

**Landscape gardening in towns and villages of oil producing areas in the Central Lena River region.** (Oso-bennosti ozeleneniia gorodov i poselkov neftegazodobyvaushchikh ratonov Srednego Priob'ia). Shilova, I.I., Simpozium Biologicheskije problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.128-129. In Russian. **Urban planning, Taiga, Introduced plants, Landscape types.**

34-4237

**Ecologic and geographic regularities governing reproduction cycles of pine and fir in the North.** (Ekologo-geograficheskie zakonomernosti reproduktivnogo tsikla sosny i eli na Severe). Basov, V.A., Simpozium Biologicheskije problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.133-134. In Russian. **Taiga, Cryogenic soils, Plant ecology, Plant physiology, Forestry.**

34-4238

**Effectiveness of draining north taiga lands in Komi ASSR.** (Lesosushitel'nye raboty v severnoi taige Komi ASSR i ikh effektivnost'). Gortinskii, G.B., et al. Simpozium Biologicheskije problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.137. In Russian. Evdokimov, V.N. **Taiga, Paludification, Land reclamation, Drainage, Channels (waterways), Cryogenic soils.**

34-4239

**Metabolism of north taiga fir growing on drained and fertilized peat soil.** (Metabolizm eli na osushennoi i udobrennoi torfianoi pochve severnoi podzony taigi). Kononov, V.N., Simpozium Biologicheskije problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.147. In Russian. **Taiga, Paludification, Land reclamation, Cryogenic soils, Peat, Plant physiology.**

34-4240

**Trends in the reforestation of light coniferous open woodlands in the Far Northeast.** (Osnovnye napravleniia po lesovosstanovleniiu v podzone svetlokhvoynykh redkostolnykh lesov Kralnego Severo-Vostoka). Kotliarov, I.I., Simpozium Biologicheskije problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.148-149. In Russian. **Subarctic landscapes, Forest land, Cryogenic soils, Revegetation, Forestry.**

34-4241

**Growing forest cultures beyond the polar circle.** (K voprosu sozdaniia lesnykh kul'tur posadkol v Zapoliar'e). Pankratov, E.N., Simpozium Biologicheskije problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.157-158. In Russian. **Polar regions, Forest land, Cryogenic soils, Introduced plants, Revegetation.**

34-4242

**Forest fire hazard in the North.** (Pozharnaia opasnost' rastitel'nosti Severa). Filippov, A.V., Simpozium Biologicheskije problemy Severa, 8th, Apatity, 1979. Tezisy dokladov (Symposium on biological problems of the North, 8th, Apatity, 1979. Abstracts of the papers) edited by V.V. Kriuchkov, Apatity, 1979, p.163-164. In Russian. **Forest fires, Taiga, Vegetation, Environmental protection.**

34-4243

**Standing crops and species composition of diatoms in sea ice from Robeson Channel to the Gulf of St. Lawrence.** Dunbar, M.J., et al. *Ophelia*, May 1980, 19(1), p.61-72, 27 refs. Acreman, J.C. **Sea ice, Plankton, Algae, Chlorophylls, Ice salinity, Cryobiology.**

34-4244

**Accelerated roadbed construction method used at the Surgut-Urengoy railroad line.** (Uskorennoe sooruzhenie zemlianoego polotna na stroitel'stve zheleznodorozhnoi linii Surgut-Urengoi). Meshkov, V.M., *Mekhanizatsiia stroitel'stva*, Aug. 1980, No.8, p.21-22. In Russian. **Railroads, Roadbeds, Permafrost beneath structures, Transportation, Snow roads, Helicopters.**

34-4245

**Field study of the physical properties, response to swell, and subsequent fracture of a single ice floe in the winter Bering Sea.** Squire, V.A., et al. *Washington (State) University. Department of Atmospheric Sciences and Oceanography. Scientific report*, July 1980, No.18, 56p., Refs. p.48-50. Martin, S. **Ice floes, Fracturing, Ice physics, Strains, Ice deformation, Sea ice.**

34-4246

**Condensation-freezing mechanism at weak supersaturation in respect to ice.** (Mécanisme de condensation-congélation à faible sursaturation par rapport à la glace). Montmory, R. *Journal de recherches atmosphériques*, Jan.-Mar. 1980, 14(1), p.71-83, 30 refs. Comment on an article by J.C. Grenier and P. Admirat, and a reply by original authors. See 34-1743. Grenier, J.C., Admirat, P. **Ice crystal nuclei, Condensation nuclei, Freezing points, Supersaturation, Hygroscopic nuclei, Boundary layer.**

34-4247

**On the mechanism of dewatering colloidal aqueous solutions by freeze-thaw processes.** Ezekwo, G., et al. *Water research*, 1980, 14(8), p.1079-1088, 40 refs. Tong, H.-M., Gryte, C.C. **Sewage treatment, Freeze thaw cycles, Colloids, Moisture transfer, Solutions, Freeze drying, Ice crystals, Ice formation, Temperature gradients, Sludges.**

34-4248

**Interferometric observation of natural convection during freezing from a vertical flat plate.**

Buren, P.D., et al, *Journal of heat transfer*, May 1980, 102(2), p.375-378, 8 refs.

Viskanta, R.

**Liquid solid interfaces, Heat transfer, Stefan problem, Freezing, Phase transformations, Plates, Convection.**

34-4249

**Heat transfer analysis for solidification of rounds.**

Tien, R.H., *Journal of heat transfer*, May 1980, 102(2), p.378-379, 3 refs.

**Heat transfer, Solutions, Freezing, Phase transformations, Convection, Solid phases.**

34-4250

**Sublimation of a horizontal slab of dry ice: an analog of pool boiling on a flat plate.**

Dhir, V.K., *Journal of heat transfer*, May 1980, 102(2), p.380-382, 10 refs.

**Dry ice (trademark), Ice sublimation, Liquid solid interfaces, Heat flux, Plates.**

34-4251

**Deformation properties of sea ice.** (Deformatsionnye kharakteristiki morskogo l'da).

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as any item routinely produced and available for applications within the environmental sciences. These range from photographic displays, charts, and teletype messages to the raw alphanumeric data available on computer disk and tape. A brief description of the product, its known accuracies (when applicable), a list of primary users, and an example of the product are given; a summary table of products can be found at the end of this volume for quick reference. Data for Antarctica, derived almost exclusively from satellite observations, and sea ice charts for the Southern Oceans are included among NESS products.



*Bibliography on*  
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**VOLUME 34, Part 2**

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## NOTE

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See: Alimentation

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See also: Dynamic loads; Ice loads; Snow loads; Static loads

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See: Introduced plants

**Plant location**

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**Seasonal thaw layer**

See: Active layer

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See also: Permeability

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See: Snowdrifts

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See also: Snow removal

**Winter operation**

See: Cold weather operation

**Winter performance**

See: Cold weather performance

**Winter road service**

See: Road maintenance; Snow removal; Winter maintenance

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